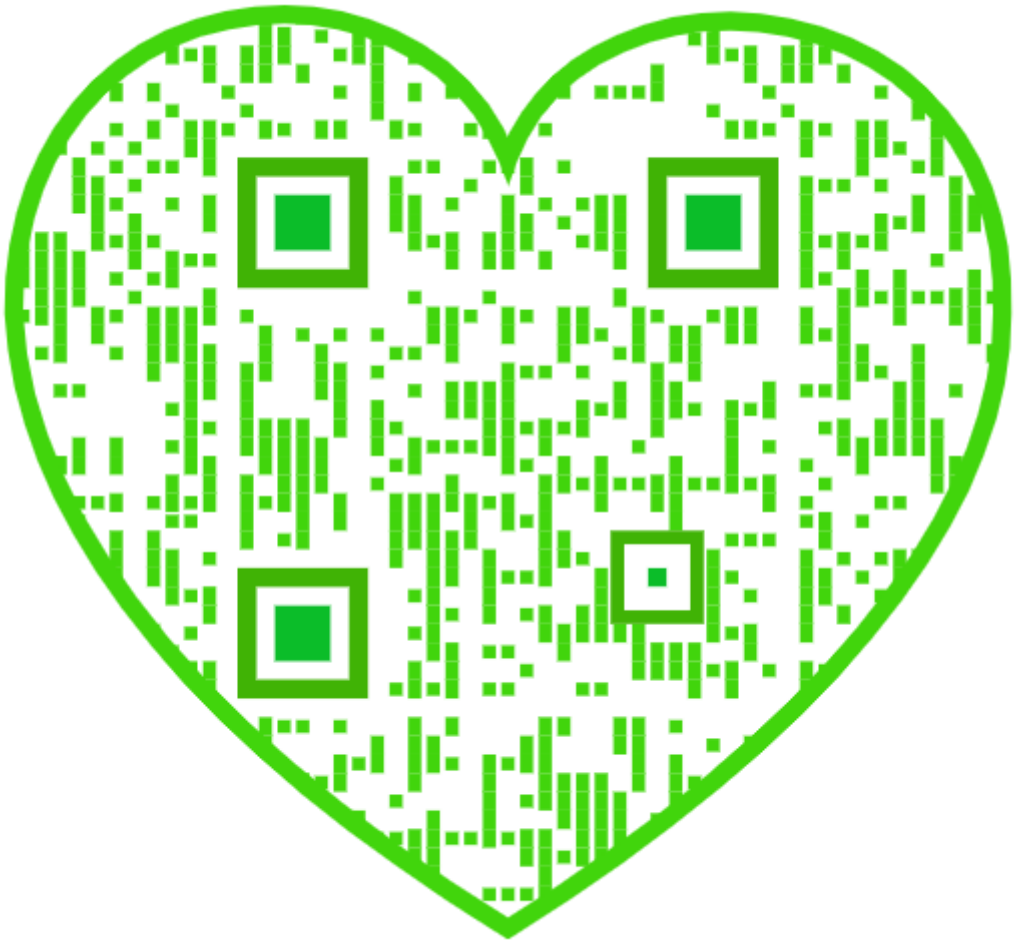

TRANSACTIONS

OF THE

American Association

OF

Obstetricians and Gynecologists

VOL. XVIII

FOR THE YEAR 1905

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NOTE

The Association does not hold itself responsible for the views enunciated in the papers and discussions published in this volume.

WILLIAM WARREN POTTER, *Secretary*,
284 FRANKLIN STREET, BUFFALO.

[Minutes and discussions stenographically reported by WILLIAM WHITFORD, Chicago, Ill.]

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CONSTITUTION AND BY-LAWS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

TOGETHER WITH

MINUTES OF THE EIGHTEENTH ANNUAL MEETING

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

CONSTITUTION.

I. The name of this Association shall be THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

II. Its object shall be the cultivation and promotion of knowledge in whatever relates to Abdominal Surgery, Obstetrics, and Gynecology.

MEMBERS.

III. The members of this Association shall consist of Ordinary Fellows, Honorary Fellows, and Corresponding Fellows.

The Ordinary Fellows shall not exceed one hundred and fifty in number.

The Honorary Fellows shall not exceed ten American and twenty-five foreign.

Candidates shall be proposed to the Executive Council at least one month before the first day of meeting, by two Fellows, and shall be balloted for at the annual meeting, a list of names having been sent to every Fellow with the notification of the meeting.

A two-thirds vote in the affirmative of all the members present shall be necessary to elect—fifteen Fellows at least being in attendance.

All candidates for active fellowship shall submit to the Executive Council, at least one month before the annual meeting, an original paper relating to Abdominal Surgery, Obstetrics, or Gynecology.

HONORARY FELLOWS.

IV. The power of nominating Honorary Fellows shall be vested in the Executive Council.

Their election shall take place in the same manner as that of Ordinary Fellows.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, but shall not be required to pay any fee.

CORRESPONDING FELLOWS.

V. The Corresponding Fellows shall be recommended by the Executive Council and elected by the Association.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, and shall be entitled to a copy of the annual TRANSACTIONS.

They shall pay an annual fee of five dollars.

OFFICERS.

VI. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and six Executive Councillors.

The nomination of all officers shall be made in open session at the business meeting, and the election shall be by ballot.

The first five officers shall enter upon their duties immediately before the adjournment of the meeting at which they shall be elected, and shall hold office for one year.

["At the election next succeeding the adoption of these laws, the full number of Executive Councillors shall be elected; two for a term of three years, two for a term of two years, and two for a term of one year.

"At every subsequent election two Councillors shall be elected for a term of three years, and shall continue in office until their successors shall have been elected and shall have qualified."][1]

Any vacancy occurring during the recess may be filled temporarily by the Executive Council.

ANNUAL MEETINGS.

VII. The time and place of holding the annual meeting shall be determined by the Association or may be committed to the Executive Council each time before adjournment.

It shall continue for three days, unless otherwise ordered by vote of the Association.

[1]Amendment adopted September 21, 1898.

AMENDMENTS.

VIII. This Constitution may be amended by a two-thirds vote of all the Fellows present at the annual meeting: *provided*, that notice of the proposed amendment shall have been given in writing at the annual meeting next preceding: and *provided, further*, that such notice shall have been printed in the notification of the meeting at which the vote is to be taken.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

BY-LAWS.

THE PRESIDING OFFICER.

I The President, or in his absence, one of the Vice-Presidents, shall preside at all meetings, and perform such other duties as ordinarily pertain to the Chair.

The presiding officer shall be *ex-officio* chairman of the Executive Council, but shall vote therein only in case of a tie.

SECRETARY.

II. The Secretary shall attend and keep a record of all meetings of the Association and of the Executive Council, of which latter he shall be *ex-officio* clerk, and shall be entitled to vote therein.

He shall collect all moneys due from the members, and shall pay the same over to the Treasurer, taking his receipt therefor.

He shall supervise and conduct all correspondence of the Association; he shall superintend the publication of the TRANSACTIONS under the direction of the Executive Council, and shall perform all the ordinary duties of his office.

He shall be the custodian of the seal, books, and records of the Association.

TREASURER.

III. The Treasurer shall receive all moneys from the Secretary, pay all bills, and render an account thereof at the annual meetings, when an Auditing Committee shall be appointed to examine his accounts and vouchers.

EXECUTIVE COUNCIL.

IV. The Executive Council shall meet as often as the interests of the Association may require. The President, or any three members may call a meeting, and a majority shall constitute a quorum.

It shall have the management of the affairs of the Association, subject to the action of the house at its annual meetings.

It shall have control of the publications of the Association, with full power to accept or reject papers or discussions.

It shall have control of the arrangements for the annual meetings, and shall determine the order of the reading of papers.

It shall constitute a court of inquiry for the investigation of all charges against members for offences involving law or honor; and it shall have the sole power of moving the expulsion of any Fellow.

ORDER OF BUSINESS.

V. The Order of Business at the annual meetings of the Association shall be as follows:

1. General meeting at 10 o'clock A.M.
   a. Reports of Committees on Scientific Questions.
   b. Reading of Papers and Discussion of the same.
2. One Business Meeting shall be held at half-past nine o'clock A.M. on the first day of the session, and another on the evening of the second day (unless otherwise ordered by vote), at which only the Fellows of the Association shall be present. At these meetings the Secretary's record shall be read; the Treasurer's Accounts submitted; the reports of Committees on other than scientific subjects offered; and all Miscellaneous Business transacted.

PAPERS.

VI. The titles of all papers to be read at any annual meeting shall be furnished to the Secretary *not later* than one month before the first day of the meeting.

No paper shall be read before the Association that has already been published, or that has been read before any other body.

Not more than thirty minutes shall be occupied in reading any paper before the Association.

Abstracts of all papers read should be furnished to the Secretary at the meeting.

All papers read before the Association shall become its sole property if accepted for publication; and the Executive Council may decline to publish any paper not handed to the Secretary *complete* before the final adjournment of the annual meeting.

QUORUM.

VII. The Fellows present shall constitute a quorum for all business, excepting the admission of new Fellows or acting upon amendments to the Constitution, when not less than fifteen Fellows must be present.

DECORUM.

VIII. No remarks reflecting upon the personal or professional character of any Fellow shall be in order at any meeting, except when introduced by the Executive Council.

FINANCE.

IX. Each Fellow, on admission, shall pay an initiation fee of twenty-five dollars, which shall include his dues for the first year.

Every Fellow shall pay, *in advance* (*i.e.*, at the beginning of each fiscal year) the sum of twenty dollars annually thereafter.

[A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.]

Any Fellow neglecting to pay his annual dues for two years may forfeit his membership, upon vote of the Executive Council.

The Secretary shall receive, annually, a draft from the President, drawn on the Treasurer, for a sum, to be fixed by the Executive Council, for the services he shall have rendered the Association during the year.

A contingent fund of one hundred dollars shall be placed annually at the disposal of the Secretary for current expenses, to be disbursed by him, and for which he shall present proper vouchers.

ATTENDANCE.

X. Any Fellow who shall neither attend nor present a paper for three consecutive years, unless he offer a satisfactory excuse, may be dropped from fellowship, upon vote of the Executive Council.

RULES.

XI. *Robert's Rules of Order* shall be accepted as a parliamentary guide in the deliberations of the Association.

AMENDMENTS.

XII. These By-Laws may be amended by a two-thirds vote of the Fellows present at any meeting; *provided*, previous notice in writing shall have been given at the annual meeting next preceding the one at which the vote is to be taken.

OFFICERS FOR 1905-1906

PRESIDENT.

JOHN YOUNG BROWN, SAINT LOUIS.

VICE-PRESIDENTS.

JAMES NEPHEW WEST, NEW YORK.

FRANK FARROW SIMPSON, PITTSBURG.

SECRETARY.

WILLIAM WARREN POTTER, BUFFALO.

TREASURER.

XAVIER OSWALD WERDER, PITTSBURG.

EXECUTIVE COUNCIL.

*LEHMAN HERBERT DUNNING, INDIANAPOLIS.

RUFUS BARTLETT HALL, CINCINNATI.

JAMES F. W. ROSS, TORONTO.

WALTER BLACKBURN DORSETT, SAINT LOUIS.

ROBERT TUTTLE MORRIS, NEW YORK.

HOWARD WILLIAMS LONGYEAR, DETROIT.

*Deceased.

HONORARY FELLOWS.

* Deceased.

1899.—BALLANTYNE, JOHN WILLIAM, M.D., F.R.C.P.E., F.R.S. Edin. Lecturer on Midwifery and Gynecology, School of the Royal College, Edinburgh; Examiner in Midwifery and Gynecology in the University of Edinburgh; Vice-President of the Edinburgh Obstetrical Society; Honorary Fellow of the Glasgow Obstetrical and Gynecological Society. 24 Melville Street, Edinburgh, Scotland.

1889.—BANTOCK, GEORGE GRANVILLE, M.D., F.R.C.S. Ed. Surgeon to the Samaritan Free Hospital. 14 Upper Hamilton Terrace, London, N. W., England.

1889.—BARBOUR, A. H. FREELAND, M.A., B.S.C., M.D., F.R.C.P., Ed., F.R.S. Ed. Lecturer on Midwifery and Diseases of Women in the Edinburgh Medical School; Assistant Physician to the Royal Maternity Hospital; Assistant Physician for Diseases of Women to the Royal Infirmary; Physician to the Women's Dispensary; Fellow of the Edinburgh and London Obstetrical Societies, and of the British Gynecological Society; Corresponding Fellow of the Royal Academy of Medicine, Turin. 4 Charlotte Square, Edinburgh, Scotland.

1892.—*BOISLINIÈRE, L. Ch., A.B., M.D., LL.D., Saint Louis, Mo. 1896.

1890.—CHAMPIONNIÈRE, JUST. LUCAS, M.D. 3 Avenue Montaigne, Paris, France.

1889.—*CHARPENTIER, LOUIS ARTHUR ALPHONSE, M.D. Paris, France. 1899.

1888.—CORDES, AUGUST ELISÈE, M.D. Member of the Royal College of Physicians, London; Fellow of the Obstetrical Society of London and of the British Gynecological Society; Corresponding National Member of the Obstetrical and Gynecological Society of Paris; Honorary Fellow of the Detroit Gynecological

Society; late "Chirurgien-adjoint" of the Obstetrical and Gynecological Clinic at the Maternity at Geneva; Consulting Accoucheur of the Miséricorde Hospital, etc.; Perpetual member of the Société Obstétricale de France, Paris, France. 12 Rue Bellot, Geneva, Switzerland.

1890.—*Corson, Hiram, M.D., Plymouth Meeting, Pa. 1896.

1889.—Croom, Sir J. Halliday, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. Physician to and Clinical Lecturer on Diseases of Women, Royal Infirmary, Edinburgh; Physician to the Royal Maternity Hospital; Lecturer on Midwifery and the Diseases of Women at the School of Medicine; Consulting Physician for Diseases of Women, Western Dispensary. 25 Charlotte Square, Edinburgh, Scotland.

1889.—*Dunlap, Alexander, A.M., M.D., Springfield, O. 1894.

1888.—*Edis, Arthur Wellesley, M.D. Lond. F.R.C.S., M.R.S.C.S. London, England. 1893.

1889.—*Eklund, Abraham Fredrik, M.D. Stockholm, Sweden. 1898.

1891.—Fernandez, Juan Santos, M.D. Prado, No. 105, Havana, Cuba.

1891.—*Fisher, George Jackson, A.M., M.D. Sing Sing, N. Y. 1893.

1889.—Freund, William Alexander, M.D. Professor and Director of the Clinic for Diseases of Women in the University of Berlin. Kleiststrasse 5, Berlin W., Germany.

1896.—*Gaston, James McFadden, A.M., M.D. Atlanta, Ga. 1903.

1892.—*Green, Traill, M.D., LL.D. Easton, Pa. 1897.

1894.—Jacobs, Charles, M.D. Professor of the Faculty of Medicine of Brussels; Secretary-General of the Permanent Committee of the Periodic International Congress of Gynecology and Obstetrics; Honorary President of the Belgian Society of Gynecology and Obstetrics; Honorary Fellow of the Gynecological Societies of New York and Chicago; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Gynecological Society of Paris; Surgeon to the Brussels Polyclinic. 53 Boulevard de Waterloo, Brussels, Belgium.

1889.—*KEITH, THOMAS, M.D. London, England. 1896.

1889.—LEOPOLD, G., M.D. Professor in the Royal Clinic for Diseases of Women. 90 Pfotenhauerstrasse, Dresden, Germany.

1905.—McGRAW, THEODORE A., M.D. 73 Cass Street, Detroit, Mich.

1894.—*MACLEAN, DONALD, M.D. Detroit, Mich. 1903.

1890.—MARTIN, AUGUST, M.D. Professor of Gynecology in the University of Greifswald. Greifswald, Germany.

1895.—*MASTIN, CLAUDIUS HENRY, M.D., LL.D. Mobile, Ala. 1898.

1897.—MATHEWS, JOSEPH McDOWELL, M.D. Professor of Diseases of the Rectum and Clinical Surgery, Hospital College of Medicine; President of the Kentucky State Board of Health; First Vice-President American Medical Association, 1898; President, 1899. 923 Fourth Avenue, Louisville, Kentucky.

1891.—*MOSES, GRATZ ASHE, M.D. Saint Louis, Mo. 1901.

1905.—MYERS, WILLIAM HERSCHEL, M.D. (Transferred from Ordinary List, 1905.) Fort Wayne, Ind.

1889.—NICOLAYSEN, JULIUS, M.D. Professor of Surgery in the University of Norway. Christiania, Norway.

1891.—PIETRANERA, E., M.D. Professor of Obstetrics in the Medical Department of the National University; Director of the Maternity Branch of the Clinical Hospital. 2711 Calle Rio Adaria, Buenos Ayres, Argentine Republic, S. A.

1889.—*SAENGER, MAX, M.D. Prague. 1903.

1890.—SAVAGE, THOMAS, M.D., F.R.C.S. Eng. Surgeon to the Birmingham Hospital for Women. 133 Edmund Street, Birmingham, England.

1889.—SCHULTZE, BERNHARD SIGMUND, M.D. Professor of Gynecology; Directory of the Lying-in Institute and of the Gynecological Clinic. 2 Sellierstrasse, Jena, Germany.

1896.—SÉGOND, PAUL, M.D. Professor of the Faculty of Medicine, Paris; Surgeon to the Salpêtriére; Principal Physician to the Orleans Railroad. 11 Quai d'Orsay, Paris, France.

1899.—SINCLAIR, WILLIAM JAPP, M.A., M.D. (Aberd.), M.R.C.P. Professor of Obstetrics and Gynecology, Owens College, Victoria University; Physician to the Manchester Southern Hospital for Diseases of Women and Children. Garvock House, Dudley Road, Whalley Range, Manchester, England.

1894.—*SLAVIANSKY, KRONID, M.D. St. Petersburg, Russia. 1898.

1888.—*SMITH, J. GREIG, M.A., C.M., M.B., F.R.S.E. Bristol, England. 1897.

1896.—STERNBERG, GEORGE MILLER, A.M., M.D., LL.D. Surgeon-General U. S. Army (Retired). 2144 Columbia Avenue, Washington, D. C.

1899.—*STORRS, MELANCTHON, A.M., M.D. (Founder. Transferred from Ordinary List.) Hartford, Conn. 1900.

1888.—*TAIT, LAWSON, M.D., LL.D., F.R.C.S.E. Birmingham, England. 1899.

1905.—TAYLOR, WILLIAM HENRY, M.D. *President*, 1888–1889. 553 West Seventh Street, Cincinnati, Ohio.

1900.—*THORNTON, J. KNOWSLEY, M.B., M.C. Cambridge, England. 1904.

1888.—WILLIAMS, SIR JOHN, BART., M.D., F.R.C.P. Plâs Llanstephan, Carmarthenshire, Wales.

1901.—WEBER, GUSTAV C. E., M.D., LL.D. Willoughby, Ohio.

1889.—VON WINCKEL, F., M.D. Professor of Gynecology and Director of the Royal Hospital for Women; Member of the Supreme Council and of the Faculty of Medicine in the University of Munich. 16A Sonnenstrasse, Munich, Germany.

1905.—WYMAN, WALTER, M.D. Surgeon General United States Public Health and Marine Hospital Service. Washington, D. C.

Total, twenty-six Honorary Fellows.

CORRESPONDING FELLOWS.

1899.—BEUTTNER, OSCAR, M.D. Privat-docent of the Faculty of Medicine. 2 Place de la Fasterie, Geneva, Switzerland.

1903.—CROZEL, G., M.D. Professor Libre of Gynecology. Collonges au Mont d'Or (Rhone), France.

1903.—ELLIS, GUILHERME, M.D. Chief Surgeon to the Real Sociedade de Beneficencia Portuguese Hospital. 6 Rua Aurora, S. Paulo, Brazil, S. A.

1891.—GRIFFIN, HERBERT SPOHN, B.A., M.D. Surgeon to Hamilton City Hospital; Examiner in Obstetrics, University of Toronto. 157 Main Street, Hamilton, Ontario, Canada.

1903.—LANE, HORACE MANLEY, M.D., LL.D. President of Mackenzie College, S. Paulo, Brazil. 184 Rua da Consolacao, S. Paulo, Brazil, S. A.

1891.—MACHELL, HENRY THOMAS, M.D., L.R.C.P. Ed. Lecturer on Obstetrics, Women's Medical College; Surgeon to St. John's Hospital for Women; Physician to Victoria Hospital for Sick Children and to Hillcrest Convalescent Home. 95 Bellevue Avenue, Toronto, Ontario, Canada.

1898.—WRIGHT, ADAM HENRY, B.A., M.D. Univ. Toronto, M.R.C.S. Eng. Professor of Obstetrics in the University of Toronto; Obstetrician and Gynecologist to the Toronto General Hospital and Burnside Lying-in Hospital. *President*, 1891. (Transferred from Ordinary List, 1898.) 30 Gerrard Street, East, Toronto, Ont., Canada.

Total, seven Corresponding Fellows.

ORDINARY FELLOWS

* Deceased. † Resigned.

1902.—ABRAMS, EDWARD THOMAS, A.M., M.D. Consulting Surgeon to the Lake Superior General Hospital; Member of the Michigan State Medical Society; Member of the American Medical Association. Dollar Bay, Mich.

1890.—ASDALE, WILLIAM JAMES, M.D. Professor of Diseases of Women, Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania). 5523 Ellsworth Avenue, Pittsburg, Pa.

1895.—BACON, JOSEPH BARNES, M.D. Professor of Rectal Diseases at the Post-Graduate Medical School; Instructor in Clinical Surgery in the Medical Department of Northwestern University. Macomb, Ill.

Founder.—*BAKER, WASHINGTON HOPKINS, M.D. Philadelphia, Pa. 1904.

1895.—BALDWIN, JAMES FAIRCHILD, A.M., M.D. Surgeon to Grant Hospital, 125 South Grant Avenue. Residence, 405 E. Town Street, Columbus, Ohio.

1903.—BANDLER, SAMUEL WYLLIS, M.D. Instructor in Gynecology in the New York Post-Graduate Medical School and Hospital; Adjunct Gynecologist to the Beth Israel Hospital. 134 West Eighty-seventh Street, New York, N. Y.

1889.—BARROW, DAVID, M.D. Member of the Southern Surgical and Gynecological Association. Residence, 379 South Broadway; Office, 148 Market Street, Lexington, Ky.

1892.—BLUME, FREDERICK, M.D. Gynecologist to the Allegheny General Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecolo-

gist to the Mercy Hospital; President of the Pittsburg Obstetrical Society, 1892. 524 Penn Avenue, Pittsburg, Pa.

1900.—BONIFIELD, CHARLES LYBRAND, M.D. Professor of Clinical Gynecology in the Medical College of Ohio; President of the Cincinnati Academy of Medicine, 1900; Gynecologist to the Good Samaritan, Christ's, and to Speer's Memorial Hospitals; formerly President of the Cincinnati Obstetrical Society; Secretary of the Section on Obstetrics and Gynecology, American Medical Association, 1901-4, Chairman, 1905. Residence, corner Washington and Gholson Avenues; Office, 432 West Fourth Street, Cincinnati, Ohio.

1896.—BOSHER, LEWIS C., M.D. Professor of the Principles of Surgery and Clinical Lecturer on Genitourinary Surgery, Medical College of Virginia; Visiting Surgeon to the Old Dominion Hospital; President Southern Surgical and Gynecological Association, 1905. 422 East Franklin Street, Richmond, Va.

Founder.—BOYD, JAMES PETER, A.M., M.D. Professor of Obstetrics, Gynecology and Diseases of Children in the Albany Medical College; Gynecologist to the Albany Hospital; Consulting Obstetric Surgeon to St. Peter's Hospital; Fellow of the British Gynecological Society. 152 Washington Avenue, Albany, N. Y.

1889.—BRANHAM, JOSEPH H., M.D. Professor of Surgery in the Maryland Medical College; Surgeon to the Franklin Square Hospital. 2200 Eutaw Place, corner Ninth Avenue, Baltimore, Md.

1894.—BROWN, JOHN YOUNG, M.D. Late First Assistant Physician in the Central Kentucky Asylum for the Insane; President of the Mississippi Valley Medical Association, 1898; Superintendent and Surgeon in charge City Hospital. *Vice-president*, 1905; *President*, 1906. Address, City Hospital, Saint Louis, Mo.

1889.—*BURNS, BERNARD, M.D. Allegheny, Pa. 1892.

Founder.—CARSTENS, J. HENRY, M.D. Professor of Obstetrics and Clinical Gynecology in the Detroit College of Medicine; Gynecologist to the Harper Hospital; Attending Physician to the Woman's Hospital; Obstetrician to the House of Providence; President of the Detroit Gynecological Society, 1892. *Vice-president*, 1888-89; *President*, 1895; *Executive Council*, 1896-98. 620 Woodward Avenue, Detroit, Mich.

1895.—CHASE, WALTER BENAJAH, M.D. Gynecologist to the Bushwick Hospital; Attending Surgeon and Gynecologist, Central Hospital and Dispensary; Consulting Gynecologist to the Long Island College Hospital; Councilor to the Long Island College Hospital; Fellow of the Brooklyn Gynecological Society (President, 1893); Member Medical Society County of Kings (President, 1892); Permanent Member Medical Society State of New York; Member of the Brooklyn Pathological Society, and Honorary Member of the Queens County Medical Society. *Executive Council*, 1899-1904. 936 St. Marks Avenue, Borough of Brooklyn, New York.

Founder.—CLARKE, AUGUSTUS PECK, A.M., M.D. Dean and Professor of Gynecology and Abdominal Surgery in the College of Physicians and Surgeons, Boston; Vice-president of the American Medical Association, 1896; President of the Gynecological Society of Boston, 1891-92; Vice-president of the Pan-American Medical Congress, Washington, 1893, and of the Pan-American Medical Congress, Mexico, 1896; Honorary President of the Section of Obstetrics and Gynecology of the Twelfth International Medical Congress, Moscow, Russia, 1897; Member of the Massachusetts Medical Society; Fellow of the American Academy of Medicine; Member of the American Public Health Association. 825 Massachusetts Avenue, Cambridge, Mass.

1890.—*COLES, WALTER, M.D. Saint Louis, Mo. 1892.

1904.—CONGDON, CHARLES ELLSWORTH, M.D. Gynecologist to the City Hospital for Women. 1034 Jefferson Street, Buffalo, N. Y.

1901.—CRILE, GEORGE W., A.M., M.D. Professor of Clinical Surgery in the Western Reserve University Medical College; Surgeon to St. Alexis's Hospital; Associate Surgeon to Lakeside Hospital. 169 Kensington Street, Cleveland, O.

1894.—CROFFORD, THOMAS JEFERSON, M.D. Professor of Physiology and Clinical Lecturer on Diseases of Women in the Memphis Hospital Medical College; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1900. 211 North Third Street, Memphis, Tenn.

1905.—CROSSEN, HARRY STURGEON, M.D. Clinical Professor of Gynecology in Washington University; Gynecologist to Washington University Hospital; Associate Gynecologist to Mul-

lanphy Hospital; Consulting Gynecologist to Bethesda, City and Female Hospitals. 4477 Delmar Avenue, Saint Louis, Mo.

1897.—CUMSTON, CHARLES GREENE, B.M.S., M.D. (Geneva, Switzerland.) Assistant Professor of Surgical Pathology, Tufts College Medical School, Boston; Member of the Massachusetts Medical Society; Honorary Member of the Surgical Society of Belgium, and Corresponding Member of the Obstetrical and Gynecological Society of Paris; Corresponding Member of the Association of Genitourinary Surgeons of France; Corresponding Member of the Pathological Society of Brussels, Belgium; Corresponding Member of the Electro-therapeutical Society of France. *Vice-president*, 1902. 871 Beacon Street, Boston, Mass.

Founder.—†*CUSHING, CLINTON, M.D. San Francisco, Cal. 1900. 1904.

1903.—DAVIS, JOHN, D.S., M.D. Professor of Surgery in the Birmingham Medical College; Surgeon to Hillman Hospital; ex-President of Jefferson County Medical Society and of the Board of Health of Jefferson County. Avenue G and Twenty-first Street, Birmingham, Ala.

1889.—*DAVIS, WILLIAM ELIAS B., M.D. Birmingham, Ala. 1903.

1902.—DEAVER, HARRY CLAY, M.D. Visiting Surgeon to the Episcopal, St. Christopher's, and St. Mary's Hospitals. 1534 North Fifteenth Street, Philadelphia, Pa.

1896.—DEAVER, JOHN BLAIR, M.D. Formerly Assistant Professor of Applied Anatomy at the University of Pennsylvania; Visiting Surgeon to the German Hospital. 1634 Walnut Street, Philadelphia, Pa.

1892.—DORSETT, WALTER BLACKBURN, M.D. Professor of Obstetrics and Gynecology in the Marion Sims-Beaumont College of Medicine, Medical Department of Saint Louis University; Gynecologist to the Missouri Baptist Sanitarium, Evangelical Deaconess's Hospital and the Good Samaritan Hospital; Consulting Gynecologist to the Saint Louis City and Female Hospitals. President of the Saint Louis Medical Society, 1892; President of the Missouri State Medical Society, 1900. *Vice-president*, 1898; *President*, 1904; *Executive Council*, 1905-1906. Resi-

dence, 5070 Washington Avenue; Office, Linmar Building, corner Washington and Vandeventer Avenues, Saint Louis, Mo.

1889.—DOUGLAS, RICHARD, M.D. Professor of Gynecology and Abdominal Surgery in the Vanderbilt Medical College; President of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, 1893; Fellow of the British Gynecological Society; President of the Southern Surgical and Gynecological Association, 1898. *Vice-president*, 1898. 110 Eighth Avenue South, Nashville, Tenn.

1892.—*DUFF, JOHN MILTON, A.M., M.D., Ph.D. Pittsburg, Pa. 1904.

1895.—DUNN, B. SHERWOOD, M.D. Officier d'Académie; Corresponding Member of the Société Obstétrique et Gynécologique de Paris; Member of the Société Clinique des Praticiens de France, etc. Easton, Pa.

1898.—DUNN, JAMES C., M.D. Obstetrician to Reineman Maternity Hospital. 524 Penn Avenue, Pittsburg, Pa.

1892.—*DUNNING, LEHMAN HERBERT, M.D., Professor of Diseases of Women in the Medical College of Indiana; Consulting Gynecologist to the Indianapolis City Hospital and Dispensary. *Executive Council*, 1899-1902, 1904-1906; *Vice-president*, 1900; *President*, 1903. Willoughby Building, 224 North Meridian Street, Indianapolis, Ind. (Died January 4, 1906.)

1899.—EASTMAN, THOMAS BARKER, A.B., M.D. Professor of the Medical and Surgical Diseases of Women, Central College of Physicians and Surgeons; Gynecologist to the City Hospital, City Dispensary, and Central Free Dispensary. 331 North Delaware Street, Indianapolis, Ind.

1904.—ELBRECHT, OSCAR H., M.D. Superintendent and Surgeon in charge of the Saint Louis Female Hospital. 5600 Arsenal Street, Saint Louis, Mo.

1895.—FERGUSON, ALEXANDER HUGH, M.D. Professor of Surgery at the Chicago Post-Graduate Medical School. Suite 300, Reliance Building, 100 State Street, Chicago, Ill.

1895.—FISH, EDMUND FROST, M.D. Professor of Gynecology in Milwaukee Medical College; Gynecologist to the Trinity and

Milwaukee County Hospitals; Gynecologist to the Milwaukee Free Dispensary. Merrill Building, Milwaukee, Wis.

1903.—FRANK, LOUIS, M.D. Professor of Abdominal and Pelvic Surgery in the Medical Department of Kentucky University; Surgeon to Louisville City Hospital; Surgeon and Gynecologist to the Broadway Infirmary. 229 West Chestnut Street, Louisville, Ky.

1890.—FREDERICK, CARLTON CASSIUS, B.S., M.D. Clinical Professor of Gynecology in the Medical Department of Buffalo University; Obstetrician and Gynecologist to the Buffalo Woman's Hospital; Obstetrician to the Widows' and Infants' Asylum; Gynecologist to the Erie County Hospital. 64 Richmond Avenue, Buffalo, N. Y.

1891.—GIBBONS, HENRY, JR., A.M., M.D. Dean and Professor of Obstetrics and Diseases of Women and Children in Cooper Medical College; Consulting Physician to the French and the Children's Hospitals. 920 Polk Street, San Francisco, Cal.

1902.—GILLETTE, WILLIAM J., M.D. Professor of Abdominal Surgery and Gynecology in the Toledo Medical College; Surgeon to Robinwood Hospital. 1613 Jefferson Street, Toledo, O.

1895. GILLIAM, DAVID TOD, M.D. Professor of Gynecology, Starling Medical College; Gynecologist to St. Anthony Hospital; Gynecologist to St. Francis Hospital; Consulting Gynecologist to State Street Dispensary; Member of the American Medical Association, Mississippi Valley Medical Association, and Ohio State Medical Society; Honorary Member of the Northwestern Medical Society; Member and ex-President of Columbus Academy of Medicine. *Vice-president*, 1905. 50 North Fourth Street, Columbus, O.

1895.—GOLDSPOHN, ALBERT, M.D. Professor of Gynecology, Post-Graduate Medical School; Senior Gynecologist, German Hospital; Attending Gynecologist, Post-Graduate and Charity Hospitals. *Vice-president*, 1901. Residence, 519 Cleveland Avenue; Office, 34 Washington Street, Chicago, Ill.

1904.—GOODFELLOW, GEORGE E., M.D. Division Surgeon, San Francisco Railroad. 771 Sutter Street, San Francisco, Cal.

1903.—GUENTHER, EMIL ERNEST, M.D. Senior Assistant Gynecologist and Obstetrician to St. Barnabas's Hospital; At-

tending Surgeon to the German Hospital, Newark. 159 West Kinney Street, Newark, N. J.

1892.—*HAGGARD, WILLIAM DAVID, M.D. Nashville, Tenn. 1901.

1900.—HAGGARD, WILLIAM DAVID, JR., M.D. Professor of Gynecology, Medical Department University of Tennessee; Professor of Gynecology and Abdominal Surgery, University of the South (Sewanee); Gynecologist to the Nashville City Hospital; President of the Nashville Academy of Medicine; Secretary of the Section on Diseases of Women and Obstetrics, American Medical Association, 1898; Fellow (and Secretary) of the Southern Surgical and Gynecological Association; Member of the Alumni Association of the Woman's Hospital, N. Y. *Vice-president*, 1904. 148 Eighth Avenue, North, Nashville, Tenn.

1889.—HALL, RUFUS BARTLETT, A.M., M.D. Professor of Gynecology and Clinical Gynecology at the Miami Medical College; Gynecologist to the Presbyterian Hospital; Member of the British Gynecological Association; of the Southern Surgical and Gynecological Association; of the American Medical Association; of the Ohio State Medical Society (President, 1900); of the Cincinnati Academy of Medicine; President of the Cincinnati Obstetrical Society, 1896. *Vice-president*, 1891; *President*, 1900; *Executive Council*, 1904-1905. Berkshire Building, 628 Elm Street, Cincinnati. O.

1903.—HAMILTON, ALBERT GRANT, M.D. Surgeon in Chief to the Springfield Hospital. Springfield, Neb.

1902.—HAMILTON, CHARLES SUMNER, A. B., M.D. Professor of the Principles of Surgery in Sterling Medical College; Surgeon to Mt. Carmel and Children's Hospitals. 1 North Fourth Street, Columbus, O.

1894.—HAYD, HERMAN EMIL, M.D., M.R.C.S. Eng. Gynecologist to the Erie County Hospital; Surgeon to the German Hospital. *Vice-president*, 1903. 493 Delaware Avenue, Buffalo, N. Y.

Founder.—*HILL, HAMPTON EUGENE, M.D. Saco, Me. 1894.

1891.—HOLMES, JOSUS BILLINGTON SANDERS, M.D. Professor of Obstetrics in the Southern Medical College; President of the Georgia State Medical Association, 1890; Member of the

Southern Surgical and Gynecological Association; Member of the American Medical Association. 17 West Cain Street, Atlanta, Ga.

1891.—HOWITT, HENRY, M.D., M.R.C.S. Eng. Surgeon to the Guelph General and St. Joseph's Hospital, Guelph; Member of the British and Ontario Medical Associations; Medical Health Officer for the City of Guelph. *Vice-president*, 1895. 235 Woolwich Street, Guelph, Ontaria, Canada.

1905.—HUGGINS, RALEIGH R., M.D. Surgeon to St. Francis Hospital. Diamond Building, Fifth Avenue and Liberty Street, Pittsburgh, Pa.

1895.—HUMISTON, WILLIAM HENRY, M.D. Associate Professor of Gynecology in the Medical Department of Western Reserve University; Gynecologist in Chief to St. Vincent's Charity Hospital; Consulting Gynecologist to the City Hospital; President of the Ohio State Medical Society, 1898. *Executive Council*, 1902-1903. 275 Bolton Avenue, Cleveland, O.

1898.—HYDE, JOEL W., M.D. Obstetric Surgeon to St. Mary's Hospital; Consulting Obstetrician to the Long Island College Hospital; Consulting Gynecologist to Central Hospital. 215 Schermerhorn Street, Brooklyn, N. Y.

1901.—ILL, CHARLES L., M.D. Surgeon to German Hospital; Assistant Gynecologist to St. Michael's and St. Barnabas's Hospitals; Obstetrician to St. Barnabas's Hospital, Newark; Assistant Gynecologist to all Souls' Hospital, Morristown. 188 Clinton Avenue, Newark, N. J.

Founder.—ILL, EDWARD JOSEPH, M.D. Surgeon to the Woman's Hospital; Medical Director of St. Michael's Hospital; Gynecologist and Supervising Obstetrician to St. Barnabas's Hospital; Consulting Gynecologist to the German Hospital and the Bnoth Israel Hospital of Newark, N. J., to All Souls' Hospital, Morristown, N. J., and to the Mountain Side Hospital, Montclair, N. J.; Member of the Southern Surgical and Gynecological Association. Vice-president from New Jersey of the Pan-American Medical Congress of 1893. *Vice-president*, 1893; *President*, 1899; *Executive Council*, 1901-1903. 1002 Broad Street, Newark, N. J.

1897.—*INGRAHAM, HENRY DOWNER, M.D. Buffalo, N. Y. 1904.

Founder.—*JARVIS, GEORGE CYPRIAN, M.D. Hartford, Conn. 1900.

1894.—JAYNE, WALTER ADDISON, M.D. Professor of Gynecology in the Medical Department of the University of Denver; Consultant in Gynecology, St. Luke's Hospital; Gynecologist to the Arapahoe County Hospital, Denver. 416 McPhee Building, Denver, Col.

1892.—*JELKS, JAMES THOMAS, M.D. Hot Springs, Ark. 1902.

1891.—JOHNSTON, GEORGE BEN, M.D. Professor of Gynecology and Abdominal Surgery in the Medical College of Virginia; Surgeon to the Old Dominion Hospital; Physician to St. Joseph's Female Orphan Asylum; Consulting Surgeon to the City Free Dispensary; Member of the American Surgical Association, (President, 1905); Vice-president of the Southern Surgical and Gynecological Association, 1892 (President, 1897); ex-President of the Richmond Medical and Surgical Society; President of the Virginia State Medical Society, 1897. *Vice-president*, 1897. 407 East Grace Street, Richmond, Va.

1902.—KEEFE, JOHN WILLIAM, M.D. Attending Surgeon to the Gynecological Department of St. Joseph's Hospital; Attending Surgeon to the Rhode Island Hospital; Consulting Surgeon to the Providence Lying-in Hospital. 259 Benefit Street, Providence, R. I.

1893.—LAIDLEY, LEONIDAS HAMLIN, M.D. Professor of Gynecology in the Beaumont Hospital Medical College; Surgeon in chief to the Protestant Hospital; Medical Director of the Saint Louis World's Fair of 1904. 3538 Washington Avenue, Saint Louis, Mo.

1898.—LANGFITT, WILLIAM STERLING, M.D. Surgeon-in-chief to St. John's Hospital. 510-512 Bijou Building, Penn Avenue, Pittsburg, Pa.

1901.—LINCOLN, WALTER RODMAN, B.A., M.D. Lecturer on Gynecology, College of Physicians and Surgeons of Cleveland. Lennox Building, corner Erie Street and Euclid Avenue, Cleveland, O

1900.—LINVILLE. MONTGOMERY, A.B., M.D. Surgeon to Sle-

mango Valley Hospital; Surgeon to three lines of Pennsylvania railways. 35 North Mercer Street, New Castle, Pa.

1890.—LONGYEAR, HOWARD WILLIAMS, M.D. Gynecologist to Harper Hospital; Physician to the Woman's Hospital; President of the Detroit Gynecological Society, 1889; Chairman of the Section on Obstetrics and Gynecology of the Michigan State Medical Society, 1892. *Vice-president*, 1893; *President*, 1905; *Executive Council*, 1906. 271 Woodward Avenue, Detroit, Mich.

Founder.—*LOTHROP, THOMAS, M.D. Buffalo, N. Y. 1902.

1896.—LYONS, JOHN ALEXANDER, M.D. Instructor in Gynecology at the Post-Graduate Medical School; Gynecologist and Lecturer to Nurses at the Chicago Hospital. 4118 State Street, Chicago, Ill.

1901.—MCCANDLESS, WILLIAM A., A.M., M.D. Chief Surgeon St. Mary's Infirmary; Visiting Surgeon to the City Hospital; Professor of Special and Clinical Surgery, Marion Sims-Beaumont College of Medicine. 3857 Westminster Place, Saint Louis, Mo.

1891.—*MCCANN, JAMES, M.D. Pittsburg, Pa. 1893.

1898.—*MCCANN, THOMAS, M.D. Pittsburg, Pa. 1903.

Founder.—MCMURTRY, LEWIS SAMUEL, A.M., M.D. Professor of Gynecology in the Hospital College of Medicine; Gynecologist to Sts. Mary and Elizabeth Hospital; Fellow of the Edinburgh Obstetrical Society; Fellow of the British Gynecological Society; Corresponding Member of the Obstetrical Society of Philadelphia and of the Gynecological Society of Boston; Member (President, 1891) of the Southern Surgical and Gynecological Association; President American Medical Association, 1905. *Executive Council*, 1891-1892, 1895-1905; *President*, 1893. 1912 Sixth Street, Louisville, Ky.

Founder.—MANTON, WALTER PORTER, M.D. Professor of Clinical Gynecology and Adjunct Professor of Obstetrics, Detroit College of Medicine; Gynecologist to Harper Hospital and the Eastern Michigan Asylum for the Insane; Vice-president of Medical Board of the Woman's Hospital and Foundlings' Home; Consulting Gynecologist to the Northern Michigan Asylum and St. Joseph's Retreat; Gynecic Surgeon to the House of the Good Shepherd; President of the Detroit Academy of

Medicine, 1892-1894; President of the Detroit Gynecological Society, 1890; Fellow of the British Gynecological Society; Fellow of the Royal Microscopical Society and of the Zoölogical Society of London. *Vice-president*, 1894. 32 Adams Avenue, W., Detroit, Mich.

Founder.—†*Maxwell, Thomas Jefferson, M.D. Keokuk, Iowa. 1902-1905.

Founder.—Miller, Aaron Benjamin, M.D. Professor of Gynecology in the Medical Department of Syracuse University; Gynecologist to St. Joseph's Hospital, House of the Good Shepherd and Dispensary. *Vice-president*, 1899; 1904. 326 Montgomery Street, Syracuse, N. Y.

1905.—Miller, John, M.D. Assistant to the Chair of Clinical Gynecology in the Medical College of Ohio, University of Cincinnati. 432 West Fourth Street, Cincinnati, Ohio.

1896.—*Mooney, Fletcher D., M.D. Saint Louis, Mo. 1897.

1904.—Morris, Lewis Coleman, M.D. Professor of Gynecology and Abdominal Surgery in the Birmingham Medical College; Secretary, Medical Association State of Alabama, 1904; Member of Jefferson County Board of Health. 714 North Eighteenth Street, Birmingham, Ala.

1890.—Morris, Robert Tuttle, A.M., M.D. Professor of Surgery in the New York Post-Graduate Medical School and Hospital. *Vice-president*, 1892; *Executive Council*, 1906. 616 Madison Avenue, New York, N. Y.

Founder.—*Moses, Gratz Ashe, M.D. Saint Louis, Mo. 1901. (See Honorary Fellows.)

1894.—Murphy, John Benjamin, A.M., M.D. Professor of Surgery in Rush Medical College and in the Post-Graduate Medical College; Attending Surgeon to the Cook County Hospital and to Alexander Hospital. Residence, 3152 Michigan Avenue; Office, 400 Reliance Building, 100 State Street, Chicago, Ill.

Founder.—†Myers, William Herschel, M.D. Fort Wayne, Ind. 1904. (See Honorary Fellows.)

1904.—Newman, Louis Edward, A.M., M.D. President of the Saint Louis Obstetrical and Gynecological Society, 1904. 4040 Washington Boulevard, Saint Louis, Mo.

1897.—NICHOLS, WILLIAM R., M.D. 295 Edmonton Street, Winnipeg, Manitoba, Canada.

1896.—NOBLE, GEORGE HENRY, M.D. Gynecologist to the Grady Hospital; Secretary of the Section on Obstetrics and Gynecology of American Medical Association, 1897; Member of the Southern Surgical and Gynecological Association. 131 and 133 South Pryor Street, Atlanta, Ga.

1903.—NOBLE, THOMAS BENJAMIN, M.D. Professor of Abdominal Surgery in the Central College of Physicians and Surgeons; Consultant in the Diseases of Women at the City Hospital, City Dispensary, and Protestant Deaconess's Hospital, Indianapolis. 427 Newton Claypool Building, Indianapolis, Ind.

1889.—†PAINE, JOHN FANNIN YOUNG, M.D. Galveston, Texas. 1904.

1899.—PANTZER, HUGO OTTO, M.D. Professor of Clinical Gynecology in the Indiana Medical College, Medical Department of Purdue University; Gynecologist to City Hospital, City Dispensary, St. Vincent's and Deaconess's Hospitals; Member of Indianapolis, Indiana State, Ohio Valley, Mississippi Valley Medical Associations and Indianapolis Gynecological Association. 224 North Meridian Street, Indianapolis, Ind.

1890.—PEARSON, WILLIAM LIBBY, M.D. 713 Union Street, Schenectady, N. Y.

1891.—PECK, GEORGE SHERMAN, M.D. Consulting Surgeon to the Youngstown City Hospital. *Vice-president*, 1896. 26 West Federal Street, Youngstown, O.

1899.—PFAFF, ORANGE G., M.D. Adjutant Professor of Obstetrics and Diseases of Women in the Medical College of Indiana; Gynecologist to the City, Deaconess's, and St. Vincent's Hospitals. 1337 North Pennsylvania Street, Indianapolis, Ind.

1898.—PORTER, MILES F., M.D. Professor of Surgery in the Indiana Medical College, Medical Department of Purdue University; Surgeon to Hope Hospital; Ex-President Indiana State Medical Society. *Vice-president*, 1902. 207 West Wayne Street, Fort Wayne, Ind.

Founder.—POTTER, WILLIAM WARREN, M.D. Consulting Gynecologist to the Woman's Hospital; Consulting Surgeon to the Buffalo General Hospital; President and Examiner in Obstet-

rics, New York State Medical Examining and Licensing Board; Chairman of Section of Obstetrics and Diseases of Women, American Medical Association, 1890; President of the Buffalo Obstetrical Society, 1884-1886; Member of the Southern Surgical and Gynecological Association; President of the Medical Society of the State of New York, 1891; Executive President of the Section of Gynecology and Abdominal Surgery, First Pan-American Medical Congress (1893). *Secretary*, 1888-1906. 284 Franklin Street, Buffalo, N. Y.

1903.—POUCHER, JOHN WILSON, M.D. Consulting Surgeon to Vassar Brothers Hospital, Poughkeepsie. 339 Mill Street, Poughkeepsie, N. Y.

Founder.—PRICE, JOSEPH, M.D. Physician in charge of the Obstetrical and Gynecological Department of the Philadelphia Dispensary; Member of the Southern Surgical and Gynecological Association; Honorary Fellow of the Medical Society of the State of New York; Honorary Fellow of the South Carolina Medical Society; Honorary Fellow of the Virginia Medical Society; Member of the British Gynecological Association and of the Edinburgh Obstetrical Society. *Executive Council*, 1894-1895; *President*, 1896. 241 North Eighteenth Street, Philadelphia, Pa.

1904.—REDER, FRANCIS, M.D. Chief of Clinic Department of Rectal Diseases, Medical Department of Washington University; Surgeon to Burlington Rink. 4629 Cook Avenue, Saint Louis, Mo.

Founder.—REED, CHARLES ALFRED LEE, A.M., M.D. Professor of Gynecology and Abdominal Surgery in the Cincinnati College of Medicine and Surgery and in the Woman's Medical College of Cincinnati; Surgeon to the Cincinnati Free Surgical Hospital for Women; Secretary-General of the First Pan-American Medical Congress, 1893; Member of the Southern Surgical and Gynecological Society; Fellow of the British Gynecological Society; President of the American Medical Association, 1901. *Executive Council*, 1890-1897; *President*, 1898. Rooms 61 and 62, The Groton, N. E. corner Seventh and Race Streets, Cincinnati, O.

1905.—REES, CHARLES MAYRANT, M.D. Professor of Abdominal Surgery and Gynecology in Charleston Medical School; Member of the Medical Society of the State of South Carolina; Member of the American Medical Association and of the Southern

Surgical and Gynecological Association. 169 Broad Street, Charleston, S. C.

1896.—*RHETT, ROBERT BARNWELL, JR., M.D. Charleston, S. C. 1901.

1890.—RICKETTS, EDWIN, M.D. Professor of Abdominal Surgery and Gynecology at the Cincinnati Polyclinic; Member of the American and British Medical Associations; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1899; *Executive Council*, 1901, 1904; *President*, 1902. 408 Broadway, Cincinnati, O.

1889.—*ROHÉ, GEORGE HENRY, M.D. Baltimore, Md. 1899.

1892.—ROSENWASSER, MARCUS, M.D. Dean and Professor of Diseases of Women and Abdominal Surgery in the University of Wooster; Gynecologist to the Cleveland Hospital for Women and Children; Consulting Gynecologist to the City Hospital; Member of the American Medical and Ohio State Medical Associations. *Vice-president*, 1903. Residence, 722 Woodland Avenue; Office, 456 Lenox Building, Cleveland, Ohio.

1890.—ROSS, JAMES FREDERICK WILLIAM, M.D., L.R.C.P., Eng. Gynecologist to the Toronto General Hospital; Surgeon to the Woman's Hospital; Lecturer in Clinical Gynecology at the University of Toronto. *Executive Council*, 1892-1896, 1905-1906; *President*, 1897. 481 Sherbourne Street, Toronto, Ont., Canada.

1902.—RUNYAN, JOSEPH PHINEAS, M.D. Division Surgeon to the Choctaw, Oklahoma and Gulf Railroad; Secretary of the Arkansas State Medical Association, President, 1904. 1514 Schiller Avenue, Little Rock, Ark.

1903.—SADLIER, JAMES EDGAR, M.D. Consulting Surgeon to Highland Hospital, Poughkeepsie. 295 Mill Street, Poughkeepsie, N. Y.

1904.—SCHWARZ, HENRY, M.D. Professor of Obstetrics, Medical Department of Washington University. 440 North Newstead Avenue, Saint Louis, Mo.

1901.—SCOTT, N. STONE, A.M., M.D. Professor of Surgery, College of Physicians and Surgeons, Cleveland; Consulting Surgeon to City Hospital; Consulting Surgeon to St. John's Hospital; Surgeon to the Out-patient Department of Cleveland General Hospital. Residence, 531 Prospect Avenue; Office, 603-604 Citizens' Building, Cleveland, O.

1895.—SELLMAN, WILLIAM ALFRED BELT, M.D. Professor of the Diseases of Women and Children at the Baltimore University School of Medicine; Member of the Medical and Chirurgical Faculty of Maryland; also of the Baltimore Medical and Surgical Association; the Gynecological and Obstetrical Association of Baltimore; the Clinical Society; the Baltimore Journal Club; the American Medical Association, etc. 5 East Biddle Street, Baltimore, Md.

1889.—*SEYMOUR, WILLIAM WOTKYNS, A.B., M.D. Troy, N. Y. 1904.

1902.—SIMONS, MANNING, M.D. Professor of Clinical Surgery in the Medical College of the State of South Carolina; Surgeon to St. Francis Xavier's Infirmary and to the City Hospital. 22 Rutledge Avenue, Charleston, S. C.

1899.—SIMPSON, FRANK FARROW, A.B., M.D. Assistant Gynecologist to Mercy Hospital; *Vice-president*, 1906. Bessemer Building, Pittsburg, Pa.

1901.—SKEEL, ROLAND EDWARD, M.D. Professor of Obstetrics in Cleveland College of Physicians and Surgeons; Consulting Obstetrician to the City Hospital; Obstetrician to the Cleveland General Hospital. 785 Prospect Street, Cleveland, O.

1891.—SMITH, CHARLES NORTH, M.D. Professor of Obstetrics and Clinical Gynecology in the Toledo Medical College; Gynecologist to St. Vincent's Hospital. 234 Michigan Street, Toledo, Ohio.

1904.—SMITH, WILLIAM S., M.D. Professor of Gynecology in the Maryland Medical College; Gynecologist to Franklin Square Hospital. 520 Hanover Street, Baltimore, Md.

1901.—STAMM, MARTIN, M.D. Professor of Operative and Clinical Surgery in the College of Physicians and Surgeons, Cleveland. 316 Napoleon Street, Fremont, O.

1902.—STARK, SIGMAR, M.D. Professor of Obstetrics and Clinical Gynecology in the Cincinnati College of Medicine and Surgery; Gynecologist to the Jewish Hospital. 1108 East McMillan Street, Cincinnati, O.

Founder.—*STORRS, MELANCTHON, A.M., M.D. Hartford, Conn. (See Honorary List, 1899.) 1900.

1904.—SUTCLIFFE, JOHN ASBURY, A.M., M.D. Consulting Surgeon to St. Vincent's Infirmary; Consultant in Genitourinary

Diseases to the City Hospital and to the Protestant Deaconess's Hospital. 824 North Delaware Street, Indianapolis, Ind.

1899.—SWOPE, LORENZO W., M.D. Surgeon to the Consolidated Traction Company; Chief Surgeon to Wabash Railroad, Pittsburg Division; Surgeon to Western Pennsylvania Hospital; Surgeon to Passavant Hospital; Member of the Allegheny County Medical Society; Member of the American Medical Association. Residence, 4629 Bayard Street; Office, 1105 Park Building, Pittsburg, Pa.

1901.—TATE, MAGNUS ALFRED, M.D. Professor of Diseases of Children and Embryology at the Cincinnati College of Medicine and Surgery; President Cincinnati Academy of Medicine, 1905. 19 West Seventh Street, Cincinnati, O.

Founder.—†TAYLOR, WILLIAM HENRY, M.D. Ph.D. Cincinnati, O. 1898. (See Honorary Fellows.)

1890.—THOMAS, GEORGE GILLETT, M.D. Ex-president Medical Society of the State of North Carolina. Wilmington, N. C.

1895.—THOMPSON, FRANK DANIEL, M.D. Professor of Gynecology in the Medical Department of Fort Worth University. 412 Adams Street, Fort Worth, Texas.

1895.—TOMPKINS, CHRISTOPHER, M.D., Ph.D. Professor of Obstetrics and Dean of the Medical College of Virginia; Obstetrician to the Old Dominion Hospital; Member of the Southern Surgical and Gynecological Association. 116 East Franklin Street, Richmond, Va.

Founder.—*TOWNSEND, FRANKLIN, A.M., M.D. Albany, N. Y. 1895.

Founder.—VANDER VEER, ALBERT, A.M., M.D., Ph.D. Professor of Didactic, Clinical, and Abdominal Surgery in the Albany Medical College; Attending Surgeon to the Albany Hospital; Consulting Surgeon to St. Peter's Hospital; Fellow of the American Surgical Association; Fellow of the British Gynecological Society; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Boston Gynecological Society. *Executive Council,* 1889-1891, 1895-1905; *President,* 1892. 28 Eagle Street, Albany, N. Y.

1891.—WALKER, EDWIN, M.D., Ph.D. Gynecologist to the Evansville City Hospital; President of the Indiana State Medical Society, 1892; Member of the American Medical Association and

of the Mississippi Valley Medical Association; Member of the Southern Surgical and Gynecological Association. *Vice-president*, 1901. 712 Upper Fourth Street, Evansville, Ind.

1889.—WENNING, WILLIAM HENRY, A.M., M.D. Clinical Professor of Gynecology at the Miami Medical College; Chief of Staff and Gynecologist to St. Mary's Hospital. 722 Laurel Street, Cincinnati, O.

Founder.—WERDER, XAVIER OSWALD, M.D. Professor of Gynecology at the Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania); Consulting Gynecologist at the Allegheny General Hospital; Gynecologist to the Mercy Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to St. Francis's Hospital; Consulting Surgeon to the South Side Hospital. *Treasurer*, 1888-1906. 524 Penn Avenue, Pittsburg, Pa.

1904.—WEST, JAMES NEPHEW, M.D. Professor of Diseases of Women and Secretary of the Faculty at the New York Post-Graduate Medical School and Hospital. *Vice-president*, 1906. 71 West Forty-ninth Street, New York.

1896.—WESTMORELAND, WILLIS FOREMAN, M.D. Professor of Surgery at the Atlanta Medical College. Equitable Building, Atlanta, Ga.

1897.—WHITBECK, JOHN F. W., M.D. Gynecologist to the Rochester City Hospital; Commissioner of the Board of Health. 322 East Avenue, Rochester, N. Y.

1897.—WILLIAMS, HENRY T., M.D. Attending Surgeon, City Hospital; Attending Surgeon, St. Mary's Hospital; Attending Surgeon, Monroe County Penitentiary; Consulting Surgeon to the Home for the Friendless. 274 Alexander Street, Rochester, N. Y.

1902.—WILLIAMS, JOSEPH JOHN GURNEY, M.D. Gynecologist to the Philadelphia Dispensary; Consultant in the Obstetrical Department of the Philadelphia Dispensary. 2026 Pine Street, Philadelphia, Pa.

1900.—ZINKE, ERNST GUSTAV, M.D. Professor of Obstetrics and Clinical Midwifery in the Medical College of Ohio, University of Cincinnati; Obstetrician and Gynecologist to the German Hospital; Obstetrician to the Maternity Hospital. 13 Garfield Place, Cincinnati, O.

Total, one hundred and fourteen Ordinary Fellows.

MINUTES OF THE PROCEEDINGS

AT THE

EIGHTEENTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

HELD AT THE

HOTEL ASTOR, NEW YORK

SEPTEMBER 19, 20 AND 21, 1905

EIGHTEENTH ANNUAL MEETING

NEW YORK, SEPTEMBER 19, 20 AND 21, 1905

The following-named Fellows were present:

BANDLER, SAMUEL W.	NEW YORK.
BALDWIN, JAMES F.	COLUMBUS.
BONIFIELD, CHARLES L.	CINCINNATI.
BOSHER, LEWIS C.	RICHMOND.
BRANHAM, JOSEPH H.	BALTIMORE.
BROWN, JOHN YOUNG	SAINT LOUIS.
CARSTENS, J. HENRY	DETROIT.
CHASE, WALTER B.	BROOKLYN.
CROFFORD, THOMAS J.	MEMPHIS.
CUMSTON, CHARLES GREENE	BOSTON.
DEAVER, JOHN B.	PHILADELPHIA.
ELBRECHT, OSCAR H.	SAINT LOUIS.
FRANK LOUIS	LOUISVILLE.
GILLETTE, WILLIAM J.	TOLEDO.
GUENTHER, E. ERNEST	NEWARK.
HALL, RUFUS B.	CINCINNATI.
HAYD, HERMAN E.	BUFFALO.
HOWITT, HENRY	GUELPH.
HYDE, JOEL W.	BROOKLYN.
ILL, CHARLES L.	NEWARK.
LONGYEAR, HOWARD W.	DETROIT.
McGRAW, THEODORE A. (HON.)	DETROIT.
McMURTRY, LEWIS S.	LOUISVILLE.
MILLER, AARON B.	SYRACUSE.
MILLER, JOHN.	CINCINNATI.
MORRIS, LEWIS C.	BIRMINGHAM.
MORRIS, ROBERT T.	NEW YORK.
NOBLE, THOMAS B.	INDIANAPOLIS.
PFAFF, ORANGE G.	INDIANAPOLIS.
PORTER, MILES F.	FORT WAYNE.
POTTER, WILLIAM WARREN	BUFFALO.
POUCHER, JOHN W.	POUGHKEEPSIE.
PRICE, JOSEPH	PHILADELPHIA.

REDER, FRANCIS	SAINT LOUIS.
REED, CHARLES A. L.	CINCINNATI.
SCHWARZ, HENRY	SAINT LOUIS.
SCOTT, N. STONE	CLEVELAND.
SIMONS, MANNING	CHARLESTON.
SIMPSON, FRANK F.	PITTSBURG.
SKEEL, ROLAND E.	CLEVELAND.
SMITH, WILLIAM S.	BALTIMORE.
TATE, MAGNUS A.	CINCINNATI.
THOMPSON, FRANK D.	FORT WORTH.
VANDER VEER, ALBERT	ALBANY.
WERDER, XAVIER O.	PITTSBURG.
WEST, JAMES N.	NEW YORK.
WHITBECK, JOHN F. W.	ROCHESTER.
WILLIAMS, J. J. GURNEY	PHILADELPHIA.

Letters or messages of regret were received from the following-named Fellows:

Honorary.—A. E. Cordes, Geneva; Juan Santos Fernandez, Havana; Joseph McDowell Mathews, Louisville; Bernard Sigmund Schultz, Jena; William Japp Sinclair, Manchester; General George M. Sternberg, Washington; G. E. C. Weber, Willoughby.

Corresponding.—G. Crozel, Collonges au Mont d'Or; Guilherme Ellis, S. Paulo; Horace Manley Lane, S. Paulo; Adam H. Wright, Toronto.

Ordinary.—Edward T. Abrams, David Barrow, Frederick Blume, James P. Boyd, Augustus P. Clarke, Charles E. Congdon, George W. Crile, John D. S. Davis, Walter B. Dorsett, L. H. Dunning, D. Tod Gilliam, William D. Haggard, J. B. S. Holmes, William H. Humiston, Edward J. Ill, George Ben Johnston, William S. Langfitt, Montgomery Linville, Walter P. Manton, John B. Murphy, Hugo O. Pantzer, James E. Sadlier, W. A. B. Sellman, Martin Stamm, John A. Sutcliffe, Edwin Walker, William H. Wenning, E. Gustav Zinke.

The Executive Council recommended that the following-named physicians be invited to attend the sessions as members by invitation:

Beckham, Warren S	New York.
Bloomer, Anna	"
Boldt, Herman J.	"

Chard, Marie L.	New York.
Chase, Clarence	"
Cleaves, Margaret A.	"
Cole, Carter S.	"
Evans, William J.	"
Farrow, Lillian K. P.	"
Felder, J. L.	"
Fowler, George B.	"
Frank, Benjamin	"
Gallant, A. E.	"
Gnichtel, A. L.	"
Goffé, J. Riddle	"
Hanan, James A.	"
Jennings, Walter B.	"
Kilham, Eleanor B.	"
Krug, Florian	"
Mallett, G. H.	"
Murray, Robert A.	"
Parry, Anginette	"
Pinkham, Edward W.	"
Plummer, H. E.	"
Rankin, Egbert H.	"
Richardson, A. A.	"
Sanford, W. W.	"
Silver, H. N.	"
Stiefel, B. W.	"
Sturgis, F. R.	"
Sweeney, Thompson T.	"
Taylor, T. M.	"
Thomas, E. J.	"
Vineberg, Hiram N.	"
Wells, Brooks H.	"
Whitbeck, B. H.	"
Chaffee, George	Brooklyn.
Cook, F. A.	"
Corcoran, W. J.	"
Fowler, George Ryerson	"
Glynn, James P.	"
Jewett, Charles	"
Maddren, William	"
Matson, Nathaniel	"

Shoop, Frederick	Brooklyn.
Arndt, Franklin F.	Scranton.
Broad, George B.	Syracuse.
Burr, Charles B.	Flint.
Dabney, William	Baltimore.
Dickinson, Gordon K.	Jersey City.
Dickson, Giles M.	Cincinnati.
Fisher, William A. J.	Scranton.
Fitch, M.	"
Gehrung, E. C.	Saint Louis.
Hannum, E. A.	Cleveland.
Kurth, H. A.	Schenectady.
McGraw, A.	Detroit.
McLaughlin, George	Jersey City.
Morse, F. H.	Boston.
Parker, Henry P.	Baltimore.
Stoughton, A. V.	Terryville, Conn.
Suzuki, S.	Tokio, Japan.
Tedeke, G.	West Hoboken.
Thompson, Charles E.	Scranton.
Wilson, Nelson W.	Buffalo.

FIRST DAY—*Tuesday, September 19, 1905.*

Morning Session.—The Association met at the Hotel Astor, and was called to order by the President, Dr. Howard W. Longyear, of Detroit, Mich., at 10 A.M.

The President introduced Dr. George B. Fowler, of New York, who delivered the following

ADDRESS OF WELCOME.

MR. PRESIDENT AND GENTLEMEN: It is a great pleasure to have the opportunity of welcoming you to the city of New York. Many of you are familiar with this metropolis and require very little from me in the way of explanation of the opportunities which you will have here to observe the best in a medical sense. I recall the time when your honored president and myself were associated in the College of Physicians and Surgeons, corner of Twenty-third Street and Fourth Avenue; since then this city has grown enormously. In 1871, when I graduated, there was

practically nothing above Forty-second Street. The colleges were very primitive in everything that they did and undertook. The community was not in sympathy with medical teaching; and private teaching and laboratory facilities were almost wholly unknown. It is unnecessary for me to tell you what exists to-day, except to mention or suggest the opportunities that present themselves to you to comprehend the vast strides that medicine has made.

It may be of some interest for you to know what we have here, not only in the way of institutions, but in the number of physicians. There are in the greater city of New York 6,067 registered physicians. In Manhattan and Brooklyn there are 4,362; in Brooklyn, 1,526; in Queens, 121; and in the Borough of Richmond, Staten Island, 58, thus making a total of 6,067, as I have just remarked.

In New York City there are 74 medical societies in good standing. In Manhattan and Bronx there are 70 hospitals; in Brooklyn, 24; in the Borough of Richmond, 1. Of benevolent societies, there are 166; 119 in Manhattan and Bronx, and 47 in Brooklyn and Queens. In hospitals and benevolent societies New York has more in proportion to its population than any other city in the United States. We have 74 dispensaries and infirmaries in Manhattan and Bronx, and 27 in Brooklyn and Queens. We have 54 medical journals in New York City.

What I have said gives you some idea of the interest that is taken in matters relating to medicine here, and of course during your meeting you will be afforded every opportunity to see what is going on, both in general and in particular.

I am not an obstetrician, although I was co-editor of the *American Journal of Obstetrics* for some years, when the late Dr. Paul F. Mundé was the editor-in-chief. I was the editor of the department of diseases of children and associated a good deal with gynecologists and obstetricians. I remember very well the birth of this association, and I want to say in furtherance of the idea of medical societies that we should strive to give up the thought of opposition to one another. I know very little of the status of the question to-day; but as regards the disagreements in New York City, we are making strenuous efforts, and have been for some time, toward bringing about harmony among the members of all societies, and endeavoring to exert a wholesome influence on all of them, and I hope something of

the same spirit will dominate the operations of your association. Again, gentlemen, I bid you a hearty welcome to this city, and trust that your deliberations will be productive of great good to yourselves and to your patients. (Applause.)

The President then introduced Dr. Charles A. L. Reed, of Cincinnati, a former president of the association, asking him to make response, in behalf of the Fellows, to Dr. Fowler's delightful address.

RESPONSE BY DR. CHARLES A. L. REED.

MR. PRESIDENT, DR. FOWLER, AND FELLOWS: In extending to you and through you to the profession of New York our great appreciation of your cordial sentiments, I experience a peculiar pleasure. I think we all experience great pleasure in coming to this city under any pretext, and particularly when our pretext is decidedly a legitimate one. We are reminded sometimes that the rarest flowers in nature bloom in the forest and in the jungle, and we realize that the parallel holds good somewhat in the intellectual world. This thought is brought to our minds when we reflect upon the gradual evolution of the science represented in particular by this association, and by our kindred association, The American Gynecological Society. We realize the fact, too, that the foundation of gynecological science was wrought in small hamlets in the South. We realize that from that section of the country, so prolific in intellectual initiative, came the men who laid the foundation of gynecology, not only in this country, but in the world.

We realize, furthermore, that these ideas were brought to their fullest fruition under the stimulus of this metropolis. The fact that this parallel has been followed through the entire history of medicine only confirms the view that I have expressed. There is not one of the great medical writers of antiquity, beginning with Hippocrates and coming down to the present day, who did not begin his labors in the more or less remote towns of Mesopotamia, Greece, and Italy, each in turn to bring his work to its fulfillment under the shadow of the Acropolis or upon the Seven Hills of the Eternal City. The same has been true all over the world; but the time comes in the process of evolution when we come to the metropolis to enjoy the fuller fruition and to carry it in turn back to our homes in the remoter parts of the

country. I think we are engaged in such a mission to-day. We come here to exchange ideas under the stimulus, in the midst of six thousand doctors, to exchange our views in the midst of this great literary activity, here to enrich our intellectual possessions, and to return to our homes better to fulfil our missions in life. Then, when we feel we come under the terms of welcome, such as have been extended to us, our sojourn ought to prove not only profitable, but extremely pleasant. Once more, Mr. President, in behalf of the Association, I beg to thank Dr. Fowler for his courteous terms of welcome. (Loud applause.)

Papers were then read as follows:

1. "Multiple Pregnancy Complicated by Double Pyosalpinx, with Report of a Case," by Oscar H. Elbrecht, St. Louis.

Discussed by Drs. Reed, Hayd, Bonifield, Hall, Brown, Baldwin, McMurtry, Price, and the discussion closed by the essayist.

2. "Some Considerations on the After-Management of Abdominal Section," by Walter B. Chase, Brooklyn.

Discussed by Drs. Baldwin, Reder, McMurtry, Bandler, Hayd, Price, and, in closing, by the author of the paper.

Dr. James N. West, New York, extended an invitation to the Fellows to visit the New York Post-Graduate Medical School and Hospital at any time during the meeting.

On motion, the invitation was accepted with thanks.

3. "Some General Principles in Conservative Pelvic Surgery," by John F. W. Whitbeck, Rochester.

This paper was discussed by Drs. Gillette, Hall, Reder, Bandler, Elbrecht, Bonifield, Burr (by invitation), Hall, and the discussion was then closed by the essayist.

On motion, the Association then took a recess until 2:30 P.M.

Afternoon Session, 2.30 o'clock.

The President in the Chair.

4. "Trivial Pathologic Conditions of the Uterus and Adnexa Considered as Causes of Severe Gastric Disturbance," by Francis Reder, St. Louis.

Discussed by Drs. Hall, Guenther, Werder, and the discussion was closed by the essayist.

5. "Treatment of Procidentia Uteri," by Herman E. Hayd, Buffalo.

Discussed by Drs. Bonifield, Hall, Simpson, Reder, Elbrecht, Longyear, and in closing, by Dr. Hayd.

6. "Surgery of the Liver," by William J. Gillette, Toledo.

Discussed by Drs. Brown, Bonifield, and Morris (Robert T.).

7. "The Byrne Operation and its Application in the Radical Treatment of Cancer of the Cervix," by X. O. Werder, Pittsburg.

Discussed by Drs. Chase, Corcoran (by invitation), Price, Boldt and in closing, by the essayist.

8. "Capillary Cystadenoma of the Breast," by Edward J. Ill, Newark, which was read by Dr. Guenther, in the absence of the author.

Discussed by Drs. Porter, Price, and, in closing, by Dr. Guenther.

On motion, the Association took a recess until 9:30 A.M., Wednesday.

SECOND DAY—*Wednesday, September 20, 1905.*

Morning Session.—The Association was called to order at 9:30 A.M. by the President.

9. "Indications for Hysterectomy in Puerperal Septicemia," by Charles Greene Cumston, Boston.

Before the discussion on this paper was begun, Dr. Theodore A. McGraw, of Detroit, was introduced to the Association and granted the privileges of the floor.

The paper of Dr. Cumston was then discussed by Drs. Porter, Branham, Bandler, Carstens, Gallant (by invitation), and the discussion was then closed by the essayist.

10. "Abdominal Hysterectomy for Multiple Fibroids Complicated by Pregnancy," by J. Henry Carstens, Detroit.

Discussed by Drs. Branham, Thompson, Frank, and, in closing, by Dr. Carstens.

11. "Personal Experiences in Myofibromata of the Uterus," by Miles F. Porter, Fort Wayne.

Discussed by Drs. Hayd, Carstens, Chase, Reder, Bonifield, Branham, Porter, and, in closing, by the author of the paper.

12. Dr. John Young Brown, Vice-president, took the chair, and President Longyear delivered his address. He selected for his subject, "A Study of the Etiology of Floating Kidney with Suggestions Changing the Operative Technic of Nephropexy."

On motion of Dr. Simpson, a vote of thanks was extended to

the President for his very interesting and able presentation of this subject.

On motion, the Association took a recess until 2:30 P.M.

Afternoon Session, 2.30 o'clock.

The President in the Chair.

13. "Unusual Dilatation of Cornual Bloodvessels; Rupture into Uterine Cavity; Hysterectomy; Recovery; Report of a Case," by Frank F. Simpson, Pittsburg.

Discussed by Drs. Cumston, Elbrecht, and, in closing, by the author of the paper.

14. "Primary Bowel Resection Versus Artificial Anus in the Treatment of Strangulated Hernia; Report of Seven Cases, with Remarks on the Technic," by John Young Brown, St. Louis.

This paper was discussed by Drs. Deaver, McGraw (by invitation), Pfaff, Carstens, Howitt, Noble, Frank, and, in closing, by the essayist.

At this juncture, the Secretary presented Surgeon-General Suzuki, of the Imperial Japanese Navy, who was invited to occupy a seat on the platform.

15. "Intestinal Obstruction," by Lewis C. Morris, of Birmingham.

Discussed by Drs. Morris (Robert T.), Surgeon-General Suzuki (by invitation), Howitt, Brown, and the discussion was closed by the essayist.

16. "Diagnosis," by John B. Deaver, Philadelphia.

Discussed by Dr. Carstens, and, in closing, by the essayist.

On motion, the Association took a recess until Thursday, 9:30 o'clock.

THIRD DAY—*Thursday, September 21, 1905.*

Morning Session.—The President in the Chair.

17. Samuel W. Bandler, New York, reported a case of anuria following double salpingo-oophorectomy.

Discussed by Dr. Longyear.

18. "Cesarean Section; Report of an Unusual Case," by Dr. Henry Schwarz, St. Louis.

Discussed by Drs. Vander Veer, Porter, Skeel, and, in closing, by the essayist.

19. "Appendicitis as a Factor in the Diagnosis and Treatment of Abdominal and Pelvic Tumors, Also Complicating Pregnancy," by Rufus B. Hall, Cincinnati.

Discussed by Drs. Reed. Brown, Pfaff, and, in closing, by the essayist.

20. "Pregnancy Associated with Diabetes," by Magnus A. Tate, Cincinnati.

Discussed by Dr. Bandler.

21. "Further Consideration of Mesenteric Cysts; with Report of Two Cases," by Orange G. Pfaff, Indianapolis.

22. "Extraperitoneal Pregnancy," by Charles A. L. Reed, Cincinnati, which was read by Dr. McMurtry in the absence of the author.

Discussed by Drs. Bonifield, Frank, Carstens, and, in closing, by Dr. McMurtry for Dr. Reed.

The secretary emphasized the importance of authors furnishing brief abstracts of their papers for publication in the official program.

Accordingly, Dr. McMurtry moved that the matter of getting abstracts of papers for the official program be left to the secretary. Carried.

The secretary offered the following resolutions of thanks, on behalf of the Executive Council:

Resolved, That the thanks of the American Association of Obstetricians and Gynecologists be and are hereby tendered to Drs. Robert T. Morris, S. W. Bandler, and James N. West, of the committee of arrangements, for the splendid manner in which they have cared for the comfort and benefit of the Fellows during their eighteenth annual session just closed; and especially for the manner in which the delightful banquet was prepared at the Hotel Astor, Wednesday evening.

Resolved, Further, that the thanks of the Association be and are hereby extended to Mr. Wm. C. Muschenheim, proprietor of Hotel Astor, for the excellent care taken of us by the entire staff of assistants, men and women, of his great hotel.

On motion of Dr. McMurtry, the resolutions were adopted unanimously by a rising vote.

Dr. McMurtry moved that the thanks of the Association be extended to the secretary for his indefatigable work and timely

attention to all the details which contributed so much to the pleasure of the Fellows and to the success of the meeting. Seconded and carried.

Dr. Potter thanked the Fellows for this kind expression, and said that he was never more delighted than when he was rendering services to the Association as a whole, or to its members in their personal capacity.

Dr. Longyear, the retiring President, in introducing his successor, Dr. John Young Brown, said:

"Gentlemen: The time has now come when I am to relinquish my duties as President of this Association, and in doing so I wish to thank you all most heartily, not only for your great assistance in everything pertaining to the successful conduct of the business of this Association, but also for your kindly tolerance of the Chair. With your assistance, we have had one of the most successful meetings in the history of the Association. My personal thanks are due to the Secretary for the manner in which he has worked for the interest and success of this meeting.

"There is only one other subject I would like to speak about for a moment or two, and it is this: Some of us have had experience in trying to ride two horses at the same time. Now, it takes a good deal of skill to do that without doing injustice to the horses and to himself, and I believe it is so with the members of this society, and I do not believe they can keep up the *esprit de corps* which is so necessary to the mental activity and strength of an association of this kind, if they belong to two societies of the same nature; that is, to another society whose aims are exactly like our own. If a man belongs to both, he does an injustice to this one; it makes no difference what he does to the other. He does an injustice to himself because he cannot have that influence in this society he would have if he did not belong to another one. Therefore, I would suggest that we resist those kind invitations to join the other society that have been extended to us and adhere faithfully to this Association and make it what we can make it—the most successful of its kind in this country. (Applause.)

"I will now appoint Drs. McMurtry, Hall, and Simpson to escort the President-elect, Dr. Brown, to the Chair.

Dr. Brown, in accepting the presidency, said:

"Mr. President and Fellows: I feel profoundly grateful to you for the high honor you have seen fit to confer upon me,

and I sincerely hope in the conduct of affairs of this office I will be able to attain the very high standard that has been set for me by the distinguished men who have preceded me. Again, I sincerely thank you." (Applause.)

On motion, the Association then adjourned.

WILLIAM WARREN POTTER,
Secretary.

EXECUTIVE SESSIONS.

Tuesday, September 19, 1905.

The President, Dr. Howard W. Longyear, in the Chair.

On behalf of the Executive Council, the Secretary presented a list of applicants for Fellowship, after which the Association elected by ballot the following-named candidates:

Harry Sturgeon Crossen, St. Louis; John Miller, Cincinnati; Charles M. Rees, Charleston, S. C.; and R. R. Huggins, Pittsburg.

The Secretary stated that the accounts of both the Treasurer and Secretary were ready to be audited. He therefore moved that these accounts be referred to an Auditing Committee. Carried.

The President appointed as Auditing Committee Drs. Louis Frank and O. H. Elbrecht.

The Secretary read letters from Dr. Franklin H. Martin, of Chicago, asking the privilege of having a stenographer present for the purpose of furnishing a full report of the papers and discussions for publication in his journal, "Surgery, Gynecology and Obstetrics." The Secretary also read his replies to Dr. Martin's letters, stating in substance that for years the Association had had an explicit agreement with the *American Journal of Obstetrics and Diseases of Women and Children* to publish its papers and discussions in that journal; therefore, if Dr. Martin was permitted through a stenographer to make a full report of the Transactions for his journal, it would not only be unbusiness-like, but unjust to the publishers of the journal with whom the relations of the Association had been mutually pleasant.

Dr. Rufus B. Hall said he was opposed to permitting Dr. Martin to employ a stenographer to attend the meetings to report papers in full as they were read and the discussions on them, as he considered it would be an injustice to the other

journal which had published the Transactions of the Association in full for so many years. He accordingly moved that Dr. Martin's representative be notified that the Association would not allow any such report of its proceedings, which motion was duly seconded and carried.

The Secretary made the statement, in which the Fellows concurred, that there was no objection to the official stenographer of the Association furnishing Dr. Martin such a report as he furnished the weekly medical journals.

The Secretary stated that he had sent out 150 engraved invitations to physicians in the vicinity of New York, inviting them to attend the meeting of the Association. He had received replies from a great number in the affirmative, also replies from others who regretted their inability to be present because of absence from the city.

Adjourned.

Thursday, September 21, 1905.

The Executive Session was called to order by the President, after the adjournment of the scientific session.

The Secretary explained the delay in the publication of the volume of Transactions for 1904, saying that it was due to a fire in the printing establishment, but that everything had been recovered and the volume would be issued the first week in October.

The next order of business was the election of officers, which resulted as follows: President, Dr. John Young Brown, St. Louis, Mo.; Vice-presidents, Dr. James N. West, New York City and Dr. F. F. Simpson, Pittsburg, Pa.; Secretary, Dr. William Warren Potter (re-elected), Buffalo, New York; Treasurer, Dr. X. O. Werder (re-elected), Pittsburg, Pa. To fill vacancies in the Executive Council, Dr. Robert T. Morris, New York City; and Dr. Howard W. Longyear, Detroit, Mich.

As to the place of meeting for next year, Put-in-Bay, Ohio; Atlantic City, N. J.; Columbus, Ohio, and Fort Worth, Tex., were mentioned.

On motion of Dr. Rufus B. Hall, the place of meeting was left to the Executive Council.

The Auditing Committee reported having examined the accounts of the Secretary and Treasurer, and had found them correct, with a balance of $19.91 in the treasury.

On motion, the report was adopted.

On motion, the Secretary was empowered to transfer senior members to the honorary list, when desirable.

The Secretary thereupon moved that Dr. William H. Myers, of Fort Wayne, Ind., be transferred from the ordinary to the honorary list and Dr. William H. Taylor, of Cincinnati, Founder, be made an honorary fellow, which was seconded by Dr. Hall, and carried.

It was moved, seconded, and carried that Dr. Theodore A. McGraw, of Detroit, Mich., and Dr. Walter Wyman, Surgeon-General of the Public Health and Marine Hospital Service, be made honorary members.

There being no further business to come before the meeting, the Executive Session then adjourned.

WILLIAM WARREN POTTER,
Secretary.

MEETING OF EXECUTIVE COUNCIL.

A called meeting of the Executive Council was held at Louisville, Ky., December 12, 1905, at which it was voted to hold the nineteenth annual meeting of the Association at Cincinnati, Thursday, Friday, and Saturday, September 20, 21, and 22, 1906.

WILLIAM WARREN POTTER,
Secretary.

PAPERS

READ AT THE

EIGHTEENTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

HELD AT THE

HOTEL ASTOR, NEW YORK

SEPTEMBER 19, 20 AND 21, 1905

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THE PRESIDENT'S ADDRESS

A STUDY OF THE ETIOLOGY OF FLOATING KIDNEY, WITH SUGGESTIONS CHANGING THE OPERATIVE TECHNIQUE OF NEPHROPEXY.

BY

H. W. LONGYEAR, M.D.,

Detroit.

ONE year ago this association honored me with an election to its presidency. For this distinguishing mark of your favor I thank you most heartily, and for the goodwill and friendship which prompted your action I am equally grateful and duly appreciative.

Fourteen years ago we met in this city for our third annual meeting. Our history had then but just begun to be written. To-day we find that these years each have been an upward step in advancement and development. The virile spirit, the unrest of investigation and conquest, are still our dominating characteristics. The character of our work during these years, as shown by the transactions, attests this fact. Beside the building up and developing of itself, the American Association of Obstetricians and Gynecologists has also been influential in revivifying, rejuvenating as it were, an aged sister society by giving to her of its plethora and abundance. While this much-needed Samaritan-like work was not entirely voluntary on our part, and to see the siren beckoning, and the succumbing now and then of a member to her wiles, has not been altogether pleasant, yet the thought "the greatest good to the greatest number" should animate us, and when we consider that, whereas we started to build up but one society, we have really built up two—doubled the membership of the aged one, and kept our own ranks full, each member of which belongs to the "quick" and not to the "dead," we may certainly look back upon these

years with great pride, and look forward with great hope and confidence to the future of our association.

In looking the ground over for material for a presidential address the dearth of new, unused, spick-and-span subjects was at first interesting and amusing to me; but as time passed the question became more serious, if not alarming, until the thought came to me that my audience had listened to many histories of various kinds by orators with whom I could not hope to compete, and also had had much advice as to their future course in life by men whose opinions would be more likely to sway them than my feeble words. I therefore decided to tell you in an unconventional way a simple story of an endeavor, hoping that its rehearsal would interest you in the same degree as its pursuit has its author, and chose for my subject

A STUDY OF THE ETIOLOGY OF FLOATING KIDNEY, WITH SUGGESTIONS CHANGING THE OPERATIVE TECHNIQUE OF NEPHROPEXY

The condition of nephroptosis has been the subject of much thought and speculation for many years, and its etiology widely discussed. The facts that 85 per cent. of all cases occur in women and that fifteen kidneys of the right side to one of the left become movable, and that the left kidney is almost never singly displaced, and when it does become displaced gives no such serious symptoms as are attributed to the right-sided displacement, form a sort of tough *entrée* beside the equally tough *pièce de resistance*—the fact that the kidney does come down—of the etiologic repast.

The causes of these conditions have never, in the opinion of the writer, been satisfactorily explained in the literature at his command, so that when an incident occurred to draw his attention to this question he followed the lead, so to speak, and now will attempt to give a preliminary report of his work along the lines mentioned. The report must of necessity be unfinished at this writing, as sufficient time has not yet elapsed to prove certain operative work by the test of permanence; besides, more work on the cadaver is yet desirable to establish, by the proof of greater numbers, the facts already apparently in evidence.

On December 17, 1903, while operating on a young girl of sixteen years of age, for appendical disease, at the Solvay Hospital in Delray, the writer accidentally discovered that the

kidney, which was normally placed, could be easily pulled down and held in a firm position of complete prolapse, by making traction on the cecum. This led to further observation on the etiology of displaced, loose, or floating kidney, both on the cadaver and the living subject, and afterward, as a result of those observations, to efforts to devise an operation that should have for its object the retention of the kidney in its normal position as well as the anchoring of the ascending colon in such a manner as to remedy the prolapse of the cecum, which usually obtains in these cases, so that it should not exert further traction on the kidney and, through it, on the duodenum and renal vessels. The object of this address is to record the results, though unfinished, of these observations.

The fact that the kidney in question could be pulled down and held firmly in this position by traction on the cecum and ascending colon, was an indication that there exists a more firm and positive attachment of this viscus to the kidney than is generally believed. Gerrish says: "The non-serous areas (of the kidney) are connected with the various organs with which they are related by areolar tissue." This author also says of the supports of the kidneys: "The kidneys are kept in place by their vessels, the peritoneum, and the abundant fatty tissue in which they are embedded." Another (Ref. Handbook of the Med. Sciences) says: "The chief support of the kidney is the fibrous capsule which surrounds the gland as far as the hilus and sends a firm prolongation behind the renal vessels with the sheath of the aorta, and the fascia, which covers the pillar of the diaphragm. The fibrous prolongation acts as a suspensory ligament to maintain the kidney in position."

We are still further told that "the kidneys are held in place normally by the connections of the peritoneum with the perinephric fat." (Am. Text Book of Surgery.)

A third capsule has been described by Gerota, called the renal or perirenal fascia, lying outside the fatty capsule. Its anterior layer passes across the front of the kidney and meets the same layer of the opposite kidney. The posterior layer is attached to the periosteum of the vertebræ. This fascia is adherent anteriorly to the peritoneum. This is apparently a continuation of the parietal subperitoneal fascia and should also tend to support the kidney to a limited extent.

Thus, the supports of the kidney are seen to be of a rather uncertain and indefinite character, and yet apparently sufficient

to maintain an organ weighing but from four to five ounces (Gerrish). Why this small organ, weighing so little, is pulled or pushed, as the case may be, out of its normal position, and why the right one so much more frequently than the left, are questions that have many and diverse answers by many and diverse authorities. The etiological factors, as outlined by the many recorded articles on this subject, touch every organ within the abdominal cavity, from the liver and stomach to the uterus, and beyond and outside the abdomen to the perineum, and at last, as though there were no further organs to condemn for the crime of the abduction of their inoffensive, hard-working associate, the whole body, or rather its shape, is at last attacked and charged with the offense.

Among these almost numberless opinions which are more or less confusing to the investigator, some are exceedingly ingenious and interesting, if not altogether plausible. A few of them are as follows:

International Text Book of Surgery: Atrophy of adipose capsule; repeated pregnancies; enteroptosis where the displaced intestine makes traction on the kidney; pressure on the waist by corset of skirt band, seldom by traumatism.

American Text Book of Surgery: If the perinephric fat is absorbed during acute disease or from long-continued ill health the organ can move more freely, and by its weight elongates the parietal folds which in other cases are abnormally long and lax. The kidney may also be dislocated by trauma, most common in poorly nourished females who have borne children, the scarcity of fat and the relaxation of the abdominal walls following pregnancy act as predisposing causes.

Fecal impaction as a factor in the causation of floating kidney is mentioned by Frank Griffith (*Medical Record*, July 20, 1901), who reports a case in a woman of 25 in which the long-continued weighing down of the colon with fecal accumulations was active in the production of the kidney condition, and when it was removed a prompt recovery took place.

As showing the intimate connection between the lower bowel and the kidney, the writer cites a case of loosened right kidney in a young woman who began to suffer from a stubborn colitis which defied treatment until the performance of nephropexy, when almost at once the bowel symptoms disappeared.

Reference Handbook of the Medical Sciences: The kidney is normally held in place by a fascial prolongation from its fibrous

capsule to the spinal column, and also, according to Walkoff and Dilitzin, by the shape of the cavity in which the kidney lies. The normal cavity is funnel shaped. In a case of movable kidney the recess is shallow and more cylindrical. Other alleged causes are the reduction of the intraabdominal pressure by relaxation of the abdominal walls; tight lacing, especially if so carried out as to compress the ribs, and muscular strains and blows.

M. L. Harris (*Jour. Am. Med. Assn.*, June 1, 1901) cites the following as the usually accepted causes:

1. Repeated pregnancies.
2. Prolapse of the uterus and vagina with laceration of the perineum.
3. Retrodisplacements of the uterus by drawing on the ureters.
4. The rapid absorption of perineal fat as may occur in wasting disease.
5. Drawing on the kidneys by the transverse mesocolon in enteroptosis or Glenard's disease.
6. The relaxation of the abdominal walls which follows the removal of abdominal tumors or ascitic accumulations.

He shows these etiological factors to be fallacious, and conclusions are presented as follows:

1. The essential cause of movable kidney lies in a particular body shape.
2. The chief characteristics of the body form a marked contraction of the lower end of the middle zone of the body with an elimination of the capacity of this portion of the body cavity.
3. The diminution of capacity depresses the kidney so that the constricted outlet of the zone comes above the center of the organ and all acts, such as coughing, straining, lifting, flexions of the body, etc., which tend to adduct the lower ribs, press on the upper pole of the kidney and carry it still further downward.
4. It is the long-continued repetition in a suitable body form, of these influences, which collectively may be called internal trauma, that gradually produces a movable kidney.

In support of the above table he cites a number of cases. By some great stress is laid on the effect of the modern dress as an etiological factor in the displacement of the kidney in women.

Küster does not agree with this, as he finds the Egyptian women, who wear loose clothing, have floating kidneys.

After a consideration of the foregoing literature of the subject, the writer naturally assumed that the kidney of his patient was pulled down by the adhesion of the peritoneal attachment or mesentery of the colon, to the fatty capsule of the kidney, and yet the firmness of the attachment was an apparent contraindication. With the object of testing this point, three cases of floating kidney were operated upon. The peritoneal cavity was entered through the usual incision in the loin, the redundant mesentery gathered up and attached to the incision of the fascia close to the twelfth rib, at the upper angle of the wound. In the first case, which was an extreme one of ptosis, having had Dietil's crises for several years, the ease with which the operation was performed, the amount of slack mesenteric tissue brought out and attached, and the immediate result which it had of entirely replacing the kidney so it could not be pushed down into the abdomen, was very encouraging.

In the second and third cases, however, in both of which the displacement was less pronounced, there was practically no mesentery, as was present in the first case, so that the peritoneal fixation seemed to promise less. However, while drawing the peritoneal attachment of the bowel out and making efforts to push the bowel down, away from the kidney, it was observed in both cases that there was a cord-like structure passing downward from the lower pole of the kidney, which prevented the separation of the kidney and bowel. This was included with the peritoneal tissue and attached with it. Further investigation of the literature failed to enlighten the writer as to the presence of any tendonous prolongation from the lower pole of the kidney, so further investigation was made on the cadaver, the dissection being as follows: the whole upper half of the abdominal parietes being incised and turned downward, the cecum, ascending colon, with hepatic flexure and kidney on the right side, and part of the descending colon with splenic flexure and kidney on the left side, were removed, the dissection being made from below upwards and the organs removed together in such a manner as not to interfere with their normal attachments to each other. On turning the specimens over, the posterior surface of bowel and kidney of each side showed a similar formation of tendonous attachment to each other. This was found to be formed by the gathering together

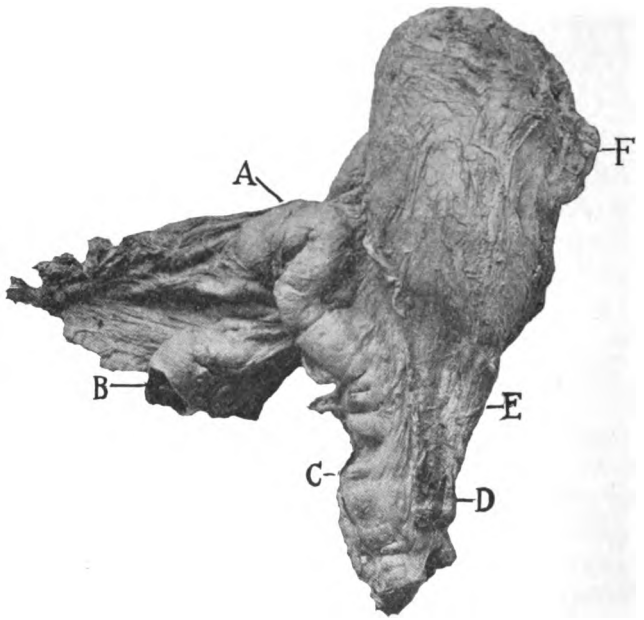
of fine longitudinal fibers from the fibrous network which forms the framework of the fatty capsule. The tendonous ridge, formed by its attachment to the posterior surface of the ascending colon, could be followed easily, between the peritoneal reflextions, down to the margin of the lower peritoneal attachment of the bowel, and close to the junction of the ileum—in fact near the point of the so-called origin, in the female subject, of the suspensory ligament of the ovary. This ligamentous continuation of the framework of the fatty capsule is probably the tissue left in the track of the ovary, or testicle, in its descent from its place of origin in the Wolffian body, high up near the kidney. Nagel says: "The *Ligamentum suspensorium ovarii* springs developmentally from the phrenic ligament of the kidney, being therefore situated on the posterior abdominal wall."

A specimen illustrating the presence of this *phrenocolic* ligament is herewith submitted. So much for its probable cause of origin, which is interesting from an embryologic standpoint and is worthy of further study, but the important point is: How much mischief is this little remnant of embryologic life doing? how much of an etiological factor is it in the production of displaced kidney? The anatomist tells us that the fatty capsule does not develop till after the tenth year. This is no doubt true as regards the *fat* of the capsule, but it is not true if applied to the fine fibrous network which forms the frame of the so-called fatty capsule, as this is found to be present in the newly born infant, enveloping the kidney and passing downward, its fibers converging at the lower pole into a more or less ligamentous structure which is inserted into the posterior wall of the ascending (or descending) colon, in exactly the same manner and proportion as in the adult. This the writer has also demonstrated on the cadaver.

Specimens illustrating this fact are herewith submitted, one of which, consisting of uterus, Fallopian tubes, ovaries, ascending and descending colon and kidneys, connected together by their normal attachments, also shows the apparent continuation of this nephrocolic ligament with the suspensory ligament of the ovary. In these small subjects the nephrocolic attachment was found much the most pronounced on the right side.

This ligamentous union of the kidney and bowel the writer claims is the most important factor in the etiology of nephroptosis. The full cecum, in it sefforts to push its contents upwards, is making traction downwards, which pulls the kidney with it

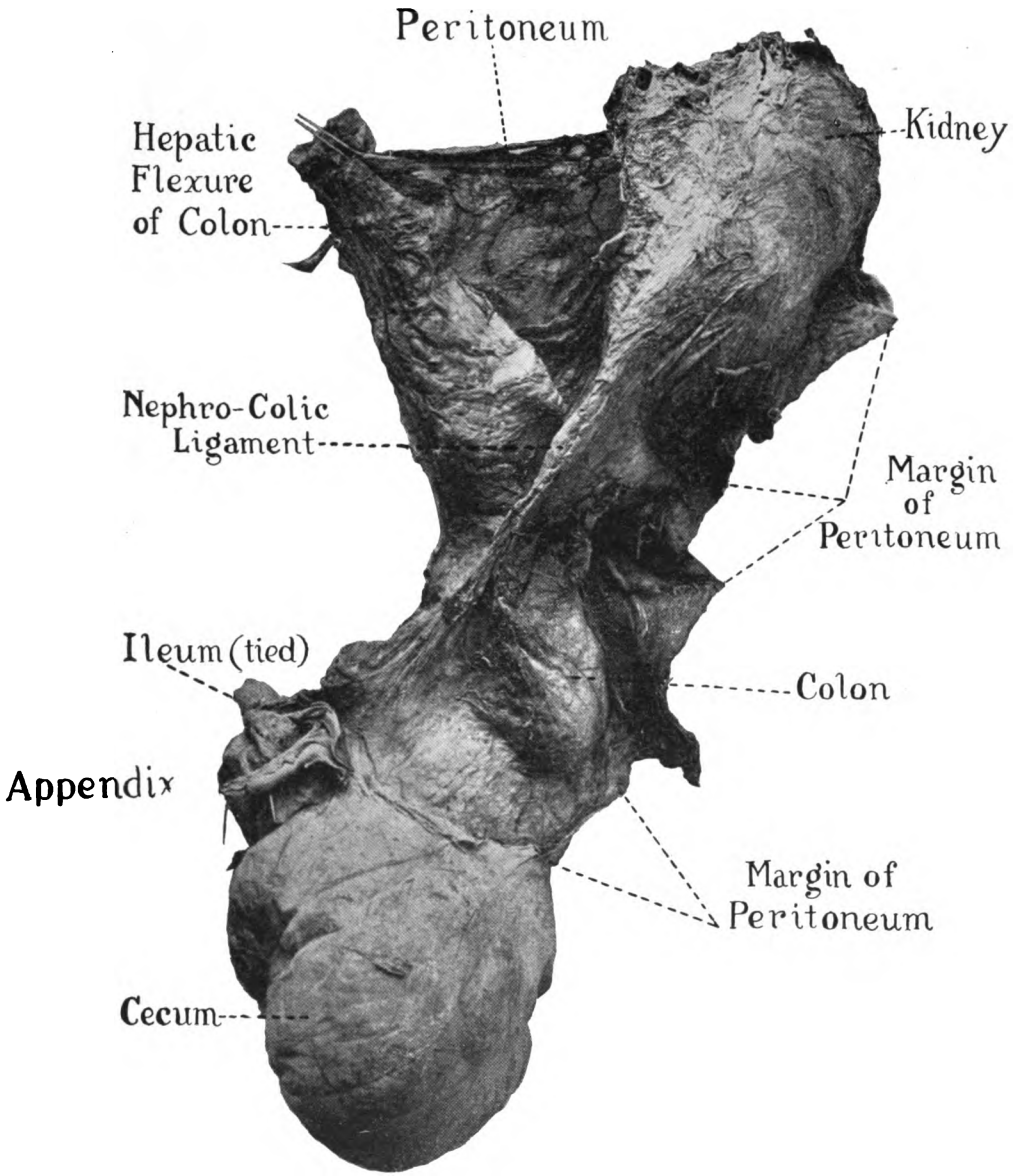
by reason of this attachment. The cecum is constantly making counter-extension, as it were, with its fixed point above, while the descending colon makes its counter-extension upward with its fixed point below. This will explain the greater relative frequency of the displacement of the right kidney over the left, which is given as about fifteen to one (Ref. Handbook Med. Sciences, p. 357).



Posterior View of Left Kidney and Colon, Showing Nephrocolic Ligament.

A, splenic flexure of colon.
B, transverse colon (turned back).
C, descending colon.
D, margin of peritoneum.
E, nephrocolic ligament.
F, kidney.

So far as the writer knows there has not, heretofore, been given any adequate explanation of the cause of this great difference. The pulling of the right kidney down by this definite and positive form of traction would also account for certain symptoms which so frequently accompany this displaced kidney and which are of a "digestive" and "nervous" character, and which owe their activity to the fact that the fatty capsule of the kidney is adherent at its inner aspect, to the descending portion of the duodenum. Traction on this viscus by the full



Posterior View of Right Kidney, Colon, and Cecum, Showing Nephrocolic Ligament.—*Longyear.*

cecum pulling downward on the kidney causes a kinking of the gut with the causation of the symptoms referred to. The cecum being the starting point of the forward movement of the colonic contents, and a cul-de-sac from which its contents must invariably go in one direction (and that upward), or impaction result, the consequence is that impaction due to torpidity is frequent, the cecum becomes heavy and pendant, pulling more and more on its attachments by its sheer weight. Add to this nature's violent efforts necessary to force the contents upward, and we have a simple and also an adequate explanation for the displacement of the right kidney as well as the presence of the prolapse of the ascending colon, which is its usual accompaniment. The properly applied abdominal band or truss relieves symptoms attributed to the floating kidney, not because it raises the kidney, but because it raises the cecum and so prevents traction on the renal vessels and duodenum.

A kidney stripped of its fatty capsule and fixed by adhesion to the muscular parietes quite frequently fails to relieve symptoms, because the continuity of attachment between the duodenum and cecum still remains through the fatty capsule, and the action of the prolapsed cecum continues to exert its influence through it on the duodenum and stomach.

If the contention of the writer is correct, that this ligamentous union of kidney and bowel is the principal cause of the pathological condition under question, then surgical therapeutics must be altered in such ways as to meet the demands of those conditions. To strip the kidney and fasten it, only where it will no longer be pulled upon, and leave the cecum to continue its traction on the duodenum, through the fatty capsule, would appear to be incomplete and bungling surgery. Theoretically, from this standpoint, the kidney stripped of its fatty capsule, without permanent elongation of its pedicle, should remain in its normal position, as its very small weight of four or five ounces would not displace it. The retention of the cecum in its normal position and the prevention of its traction on the duodenum should be the prime object of interference in this condition.

The kidney should also be fixed, and, if possible, with its fatty capsule intact, and in such a manner as not to run the risk of adding another pathological condition (not easily rectified) to those already existing, as is too frequently the result of the usual operation of nephropexy. The great variety of opinions on this subject, both anatomical and etiological, is so varied

and conflicting and so devoid of that exactness of detail that is so necessary for a proper foundation for effective therapeusis, that it is not surprising that the treatment of the displaced kidney has led to so much controversy, and that its treatment, both surgical and medicinal, has been so unsatisfactory and disappointing. A large proportion of the cases treated by operation are unsuccessful, as judged alone by their failure to relieve symptoms. In many cases the kidney remains fixed, but the symptoms persist with frequently others added to them by reason of a too low placement of the kidney. In others the not overstrong capsule is cut through at the points of suturing as a result of post-operative vomiting, or other early movements of the patient after the operation, and the kidney fails to remain fixed. In the latter case, if the fatty capsule has been well stripped away from the kidney, very little if any relief of symptoms may follow, and yet the kidney, while still palpable and more freely mobile than normally, will be found to go gradually back to its natural position. If the fatty capsule has not been well separated from the fibrous capsule this improvement in the position of the kidney will not take place in such cases, as the strong attachment of the fatty capsule to the ascending colon will pull it down again. For this same reason must the fatty capsule be entirely stripped away from the kidney, when the nephropexy is made in the usual manner by stitching the fibrous capsule to the parietes and not for the usually accepted reason that the fatty capsule will not unite readily to the tissues against which it is held.

The usual operation of nephropexy is inadequate because it fails to meet all the indications in the conditions present. To be effective the operation must certainly do one thing which the stitching of the stripped kidney only, to the loin, cannot accomplish, namely: the prevention of the descent of the ascending colon and cecum. The operation must have for its aim the attachment of both kidney and bowel; or the nephrocolic attachment may be severed, thus preventing traction on the kidney and duodenum, and the kidney fixed by simply stitching the severed ligament into the wound at its apex. This would seem an ideal method, theoretically, as it would fix the kidney, and, by severing its attachment to the bowel, prevent the traction on it and the duodenum. But this the writer has found difficult to do without danger of wounding the bowel. The operation which he has found the most easy of accomplishment and which seems

to meet the two indications mentioned, is the fixation of this nephrocolic ligament into the upper angle of the wound without severing it from the colon and also fastening the redundant mesentery, if it be present, in the lower angle of the wound. The convergence of the framework of the fatty capsule into this ligament makes a structure of sufficient strength to be depended on to hold the displaced organs if securely attached to the aponeurotic tissue, preferably where it is thick near the twelfth rib.

The kidney fixed by this ligament is placed at nearly its normal position and is not held in an immovable position, as is the case when united to the muscles by the usual operation. The bowel is also held by the same attachment and undue descent of the cecum prevented, and it is possible that this will prove sufficient; but in those comparatively rare cases in which a mesentery is present the writer deems the shortening of a redundancy best, if for no other reason than that it will prevent traction on the other attachment while it is becoming firmly fixed. As this part of the operation necessitates opening the peritoneal cavity, it will be abandoned by the writer if found unnecessary. The opening into the peritoneal cavity has, however, the added important advantage of giving free access to the kidney and enabling the operator to handle the organ at will; through its close attachment to the colon, traction on the latter, brought through the wound, serving to bring the kidney close to the opening. The difficulty of handling the kidney when grasped by the sides of the fatty capsule has been experienced by all, as the tissue gives way readily and appears to have little resisting power. This is because the fine fibers forming the network of this capsule are spread out and the trabeculæ widely separated by the fat deposited between them. As they converge below the lower pole of the kidney to become inserted into the posterior wall of the bowel, they lie parallel to each other and by their aggregation form a strong band of a good deal of resisting power, so that the kidney can be readily held in firm fixation by means of a blunt hook passed around it, permitting complete control of the organ for examination or further operation.

The writer, while submitting the record of these incomplete observations and experiments, recognizes that they are such, but hopes and believes that future work in this field will demonstrate the feasibility of his suggestions. But whether right or wrong, he believes in the philosophic words of Herbert Spencer

—that "Not as adventitious thoughts will the wise man regard the faith that is in him. The higher truth he sees he will fearlessly utter, knowing that let what may come of it he is thus playing his right part in the world—knowing that if he can effect the change he aims at—well; if not—well also; though not so well."

PYOSALPINX IN PREGNANCY AND CONFINEMENT.

REPORT OF A CASE OF MULTIPLE PREGNANCY AT TERM COMPLICATED BY DOUBLE PYOSALPINX.

BY

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THIS case is reported in the interest of obstetrics with the hope that it may add some light to that vague subject of pus tubes as a complication to pregnancy and confinement.

The duty of reporting it was impressed upon me while looking up the literature. for it is scarcer than I thought it was, and I therefore crave your indulgence.

The history of the case in point is as follows:

Mozelle, N. (colored), age 23, single, born in Arkansas, father and mother born in North Carolina, occupation cook, entered the hospital May 14, 1904.

Previous health.—Good. One abortion in the fifth month, three years ago. One full-term confinement about two years ago; normal; child died when five months of age. Last menstruation September 20, 1903; quickening February 1, 1904. No circulatory or digestive disturbances and no history of discomfort or pain.

Height 5 feet 7 inches, weight 130 pounds, fairly well nourished, no evidence of rachitis, syphilis, or acute gonorrhea. Temperature, 98 2-5; pulse, 88; respiration, 24 on day of entrance. Lungs and heart normal with the exception of a slightly accelerated pulse.

Abdomen ovoid and its greatest circumference 33 inches, uterus central, and fundus 4 inches above the umbilicus. The position of the feti were not fully determined for the diagnosis of multiple pregnancy was probable; one head, however, rested on the brim of the pelvis and a fetal pulse could be heard in the left lower quadrant.

Pelvis measurements. — Distance between spines 26 cm.; distance between trochanters 30 cm.; distance between

crests 27½ cm.; external conjugate diameter 20 cm.; introitus normal; admitted three fingers; no vaginal discharge; vaginal secretions acid. Cervix large, soft, and closed.

Urinalysis showed nothing abnormal.

Labor pains began June 5. First stage lasted 16 hours, 50 minutes. Second stage 1 hour, followed by the second child in 17 minutes, and third stage immediately followed the delivery of the second child.

The progress of labor was normal and no objective or subjective symptoms were observed.

The first child, a male, 4½ pounds, was born left occipito-anterior, and the second child, a female, 4 pounds 1 ounce, was born abreech. The placentæ and membranes were expelled intact (there being two placentæ); no laceration of perineum, and labor was complete at 11:15 P. M. During this night, or immediately following her labor, patient did not rest very well; expelled a large blood clot, and complained of some pain in the lower abdomen.

First day.—Morning temperature 98.6; pulse 78; respiration 24. Evening temperature 101; pulse 80; respiration 22.

Lochia flowed freely; no odor; paroxysmal pain in lower abdomen; uterus tender upon mild pressure.

Second day.—Morning temperature 98.2; pulse 74; respiration 20. Evening temperature 100.6; pulse 86; respiration 24.

Lochia flowed freely; complained of dull pains in lower abdomen; uterus tender; perspired freely during the night and did not rest well.

Third day.—Morning temperature 100; pulse 84; respiration 24. Evening temperature 100.2; pulse 88; respiration 28.

Complained of some abdominal pain. Uterus firm but very tender; free flow of lochia but odor was now offensive. One-half per cent. carbolic vaginal douches were ordered three times a day. One ounce of castor oil given and two movements of bowels resulted. Slept well.

Fourth day.—Morning temperature 100.4; pulse 110; respiration 18. Evening temperature 102.4; pulse 112; respiration 24.

Uterus large and very tender; lochia scant and offensive; douches continued; seven bowel movements and slept poorly.

Fifth day.—Morning temperature 102; pulse 120; respiration 28. Evening temperature 104.2; pulse 124; respiration 28.

Complained of a great deal of tenderness in lower abdomen;

lochia free but still offensive; douches continued; two bowel movements and slept very little; stimulants, whiskey and strychnine.

Sixth day.—Morning temperature 100; pulse 120; respiration 34. Evening temperature 98.6; pulse 140; respiration 40.

Was very restless; complained of severe pain, and abdomen was now slightly distended; lochia scant and very offensive, and patient first commenced to show signs of weakness, for up to this time she seemed strong and did not in any way seem to realize that she was very sick; slight nausea, and vomited twice. Stimulants and douches continued; slept very little, but after ¼ grain morphine and atropine 1-150 were given, rested fairly well in the morning.

A twenty-four hour bouillon culture of the blood, taken on the fifth day, which was made by withdrawing a liberal amount of blood from the basilic vein with an antitoxin syringe and planted in a four-ounce Florence flask of nutrient bouillon, proved negative.

Seventh day.—Morning temperature 98.4; pulse 134; respiration 32. Evening temperature 96.6; pulse 140; respiration 30.

Nausea and some hiccoughing, but no vomiting; lochia still very offensive; perspired freely; abdomen distended and very tender all over; increasing weakness and no bowel movements; Whiskey and morphine continued. Patient died at 9 P. M.

While it is very evident that my patient on the afternoon of the sixth day was suffering from a general peritonitis, her condition was still such as to make me feel that celiotomy was not yet justifiable, as a slight distention of the abdomen appeared only on that day as did also the nausea and vomiting, and she only vomited twice during the entire course of her disease.

It was just as evident on the seventh day, by the ratio between the pulse and temperature, that my patient was entering a state of collapse, and hence celiotomy was not attempted. The course of her disease was very misleading, for she certainly had a puerperal sapremic endometritis, which completely disguised the ruptured pyosalpinx, and hence my attention was not attracted to any intraabdominal complication excepting the pelvic peritonitis, which I naturally considered as being secondary to the intrauterine infection.

Autopsy was performed June 13, 1904, thirteen hours after death, and only those lesions that have any bearing on the case

will be mentioned, as the complete report would take up too much time.

When the abdomen was opened it was found filled with purulent fluid, the intestines being matted together by delicate fibrinous adhesions. The omentum extended down to the left side of the pelvis, where it was firmly adherent to the fundus of the uterus and a portion of the left Fallopian tube. Uterus, about the size of a three and a half or four months pregnant uterus, was very soft and flabby; on section showed plainly the two placental sites, and a sapremic infection of the endometrium.

The left Fallopian tube was plainly a pyosalpinx; the greatest diameter corresponding to about the width of two fingers. At its outer third, and including the fimbriated extremity, there was a laceration, or rupture if you choose, about twenty-five millimeters in length which allowed a free flow of the yellow creamy pus contents.

The left ovary was small and not infected, apparently normal.

The right Fallopian tube was also a pyosalpinx, its greatest diameter equaling that of a lemon. The fimbriated extremity was open to such an extent as to allow pus to escape by the mildest kind of pressure.

The right ovary contained a large abscess which was in no way connected with the pus tube.

Gonococci were subsequently demonstrated in pus collected from the tubes by the method of Gram.

Thus, it becomes apparent from this autopsy picture why the patient developed an acute general peritonitis.

The only cases that I could find that are at all analogous are one by Hare,[1] whose patient had a tubal pregnancy and double pyosalpinx with very interesting pathology.

The left tube was a well-developed pyosalpinx while the right presented a tubal gestation in its fimbriated extremity, with a pocket of pus between the pregnant end and the uterus.

The latter condition, he explains, must have occurred as the result of a curettement he performed a short time previous to the celiotomy for tubal pregnancy.

Talley[2] also reports a case of double pyosalpinx coexisting with pregnancy operated upon by him in the third month, which presents features that prove conclusively that a unilateral pyosalpinx during pregnancy may develop into a bilateral pyosalpinx, by the escape of infectious pus from the fimbriated end of the affected side to the open fimbriæ of the unaffected side.

The reports of two pathologists in this case who worked independently of each other both showed that the tube which was secondarily affected was infected by way of the fimbriæ, as its pathology was confined entirely to its outer third; the middle third showing only slight inflammatory changes, and the inner third, including the uterine attachment, was normal.

Blank[8] projects the hypothetical theory that virulent bacteria in the tube have a tendency to become pyosalpinx during pregnancy by reason of the hyperemia. He further states that fifty per cent. of those cases in which the tubes are adherent in the cul-de-sac rupture as pregnancy advances, from tension, pressure, or stretching of the adhesions which forces pus out of their fimbriated extremity.

My own experience with three cases of this class somewhat substantiates Blank's theory.

One case came to the hospital three weeks after confinement with the following history: on the seventh day of puerperium she had a severe chill with a rise in temperature accompanied with profuse perspiration. The chills, perspiration, and temperature continued at irregular intervals until the twenty-second day, when she was seized with severe pains in the lower abdomen; vomiting, profuse sweating, and a temperature of 102 degrees.

On the twenty-third day she was brought to the hospital with a temperature of 102.6, pulse 126, and respiration 26. Abdomen distended, very tender all over, especially the lower right side. Vaginoabdominal examination revealed a mass in the right tubal region. Celiotomy was performed immediately and disclosed a free seropurulent fluid in the pelvis and beginning general peritonitis. Further examination showed a ruptured abscess in the right ovary and a recent double pyosalpinx, each tube being highly inflamed and about the size of a thumb and containing a small amount of pus. Double salpingo-oophorectomy was done and patient made a splendid recovery.

Another case that was confined at the hospital left feeling entirely well on the twenty-first day, and went to a home for convalescent women. On the forty-third day she became suddenly ill with symptoms of irreducible inguinal hernia and was returned on the forty-fourth day feeling weaker than when she left, and suffering from severe pain in the right inguinal and tuboovarian region. Temperature 98.4, pulse 84, respiration

26. Examination revealed an enlarged tube which was very sensitive to pressure and seemed to be adherent to the internal ring. Celiotomy revealed a tuboovarian abscess about the size of an orange, firmly adherent on the right side to the internal ring, and a pyosalpinx on the left. I have reason to believe that they developed since confinement. Patient made a splendid recovery from the operation, herniotomy being performed at the same time.

Another case that was delivered at the hospital and had temperatures for a period of seven weeks varying from 99 to 104 degrees, was operated on the fiftieth day, having been confined to her bed all the time. On opening the abdomen a general plastic peritonitis was found with a large ovarian abscess which had evidently been ruptured for some time, thus accounting for the peritonitis. Death occurred the day following operation.

Conclusions.—The most striking feature of the first case was the obscurity of this fortunately rare complication, for without the autopsy I would certainly have abided by my first and only antemortem diagnosis,—*i. e.* sapremia,—and would have continued to believe that the general peritonitis was the result of the sapremic infection traveling upward through the tubes and thus into the abdominal cavity, for such a process, to my mind, would be all the more plausible in the large and flabby uterus of multiple pregnancy, more especially from the fact that large blood clots were passed on the first day, showing the relatively imperfect contraction of the uterus.

The case also shows very plainly the ability or the degree of tolerance of the pelvic peritoneum to cope with infections, as it is my opinion that the peritonitis was not general until the sixth day, for up to that time there was no hiccoughing, no vomiting, no abdominal distention, and no apparent weakness.

Another deduction is that gonorrheal peritonitis, while not very dangerous if confined to the pelvic peritoneum, is surely dangerous when it creeps out of the pelvis and becomes diffuse.

It is also my firm belief that the pyosalpinx in this case was unilateral at the time of impregnation, and that the infection was transmitted by the escape of virulent pus into the open fimbriæ of the unaffected side.

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3. Blank, Paris, France: *Annales de Gynecologie et d'Obstetrique*, 1902, as quoted by Wirtheim, Chapters in Winckel's *Handbuch der Geburtshulfe*.

DISCUSSION.

DR. CHARLES A. L. REED, Cincinnati.—We are greatly indebted to the essayist for presenting this interesting and instructive case. He has so thoroughly analyzed it that there is very little left to be added in the way of discussion. The case, however, raises some questions relative to treatment. I mention this not in the way of criticism, because I think the delay or absolute failure to operate in this case came very justly from the obscurity of the essential pathological lesion—from the confusion which arose through the masking influence of the puerperal state. But it teaches us a lesson that was impressed upon us at Washington during a meeting of the Southern Surgical and Gynecological Association by Dr. Cartledge, of Louisville, who exhibited specimens in which in the parenchyma of each uterus shown there were demonstrable accumulations, absolutely discrete, of pus formation. Now, that leads to the question of when and when not to do hysterectomy in the presence of these masking puerperal conditions, and it strikes me that this case, with the pus tube undetectable, only adds one possible condition that will point to the reason why these cases should not be subjected to operation earlier, and in a more radical way, than they have been heretofore. The pathological phenomena presented in this case are certainly very interesting. With a double pus tube, with antecedent conception, it follows, therefore, that the deduction of the essayist to the effect that the infection of the tube was unilateral prior to impregnation was absolutely incontestable.

As to the occurrence of infection on the other side, the probability is that this infection resulted from a progressive invasion of tissue of mucous structure, the nidus of infection occurring within the uterus following delivery, as it made a circuit from above from the tube, infecting the peritoneal surface, and thus reaching the fimbriæ from that side. The fact noted in Hare's case quoted by the essayist, to the effect that the tubes may be infected between the site of an extrauterine pregnancy and the uterus, is a demonstration of the possibility and of the probability that the infection in hat particular case must have traveled from the endometrium toward the fimbriæ, and it was followed by conception. Did it occur in this case, or did it not? I do not know any means by which this question can be answered.

We are under deep obligation to Dr. Elbrecht for his careful and painstaking and altogether instructive report.

DR. HERMAN E. HAYD, Buffalo.—The case presented is of great interest. I do not know that it is a very rare condition excepting that it presents multiple pregnancy. I am inclined to believe that we see a great many cases of pyosalpinx complicating delivery, in all probability due to a latent gonorrhea existing in the tube, which is stimulated to activity as a result of the trauma of labor. It seems to me it is an exceedingly difficult matter to follow the essayist as regards the mode of infection, namely, that the left tube should necessarily have been infected from a leak in the right open fimbria. It is a very rare route for infection to follow. The fact that both tubes were involved suggests they were primarily implicated, one finally becoming involved prior to the other.

So far as the obscurity of the diagnosis is concerned, I think the essayist was justified in not operating. With foul lochia and all the evidences of a puerperal septicemia, he naturally thought the symptoms were the result of a puerperal infection. I am not surprised, moreover, that the tube should have been broken during delivery, and yet have shown no symptoms for six or seven days, because in many of these cases a broken tube may exist, and as a result of the peritonitis be circumscribed, as it may have occurred in the case of Dr. Elbrecht, and only after it had broken through weak points of adhesions did general p ritonitis take place.

DR. CHARLES L. BONIFIELD, Cincinnati.—A point that is interesting in discussing double pyosalpinx is, that patients who have this disease and, as far as one can judge by bimanual examination, double pyosalpinx, sometimes recover sufficiently without operation to become pregnant. In times gone by I was imprudent enough to tell patients they would never become pregnant whenever I detected a mass on each side with every evidence of pyosalpinx. In a few instances I have been surprised after six, eight, or twelve years to find that the pus has become absorbed, and the women have become pregnant. I think, in all probability, Dr. Hayd's explanation is correct—namely, that this woman had infection of both tubes, and the hyperemia coincident with pregnancy lit up an acute inflammation and accounted for the double pyosalpinx, rather than that the germs traveled across the pelvic peritoneum and invaded the other tube from its fimbriated end, causing the inflammation in that way. The case of Hare, quoted by the essayist, must be an exception rather than the rule.

I desire to mention one case I had many years ago: this woman, as far as I was able to make out, had double pyosalpinx. She refused operation. Everything in the pelvis was found matted together, but she gradually got better, and at the end of six or eight years (I do not remember the exact time) became pregnant, and I delivered her. She went through labor very well.

At the end of a week she suddenly raised up in bed and dropped over dead. Evidently a clot or embolus was carried from the infected neighborhood to the heart.

DR. RUFUS B. HALL, Cincinnati.—Like the previous speakers, I have been much interested in the report of this very interesting case. I do not wish to discuss all of the phases of it, but the remarks of the last speaker prompted me to say something on this subject.

I disagree with Dr. Bonifield in his opinion that a woman can have double pus tubes and afterward become pregnant. I will not disagree with him in the statement that he can have a patient in whose case he may make a diagnosis of double pus tubes from an enlarged mass, firm adhesions, on either side, because we all know how difficult it is to say we have a pus tube to deal with or we have not until we have opened the abdomen of the patient and looked at it. We may find a large, inflammatory mass which disappears, and the patient recover, and she may afterward become pregnant. When we look at the pathology of pus tubes, with firm adhesion of the fimbriated end, which is obliterated, the pathology that takes place from the adherent peritoneum, or fixing the peritoneum to some neighboring structure, I cannot conceive of absorption of the pus and of the liberation of that fimbriated end again, so that the patient may become pregnant. I have seen a pus tube on one side, with a diseased tube on the other, with the fimbriated end exposed. I can conceive how such a patient could still carry her pus tube and have the pus absorbed and nature cure her symptomatically on that side; but I cannot conceive of there being double pus tubes and the woman becoming pregnant afterwards, because the fimbriated end must be closed in a pus tube. Yet it may be true. But I want Dr. Bonifield, before he says this, to prove that they are pus tubes, and then tell us whether or not pregnancy takes place. Then, and not until then, will I admit it, because my pathology is different from theory.

Let me say a word or two with reference to Dr. Elbrecht's case, and I do not say this in a spirit of criticism, but in justice to humanity. Are we not justified on the fourth day, when a woman shows a temperature of 104, when she is liable to die of puerperal sepsis, in making some kind of operation to give the patient an additional chance to recover? Dr. Elbrecht's patient, in all probability, would have stood a section then, with drainage, which would have given her an additional chance for life.

DR. JOHN YOUNG BROWN, Saint Louis.—From a pathological and surgical standpoint, the case presented by Dr. Elbrecht is one of extreme interest. I quite agree with the previous speaker (Dr. Hall) that the mere existence of pregnancy in this case (multiple pregnancy) precludes the possibility of this woman having had bilateral pyosalpinx. If she had bilateral pyosalpinx I do not believe she would have become pregnant.

The pathology as revealed by the autopsy shows conclusively that the case was one of unilateral pyosalpinx, which had lain dormant and was lighted up by the trauma of labor; that the leakage from the pus tube produced the diffuse peritonitis, and the condition on the other side was due to the bathing of the uninfected side with the pus that brought about the peritonitis. From a surgical standpoint, I think the vagueness of the case emphasizes the importance of an exploration. The case, as reported by the essayist, shows that on the fourth day the woman had a temperature of 104, and with the local conditions that were present I think surgery in the case was perfectly plain, and that an exploratory operation should have been done, followed by thorough treatment of the local condition. It seems to me that the importance of exploratory section is being emphasized every day, not only in acute cases, but in those vague conditions accompanied by temperature and muscular rigidity. The earlier we can get these cases to operation, the better our results will be.

DR. JAMES F. BALDWIN, Columbus.—The case which has just been reported emphasizes the fact which we see brought out quite often, that we should not pay too much attention to the pulse in determining the presence of peritonitis. While a rapid pulse is usually present, advanced peritonitis may exist with a practically normal pulse. A few months ago I was called on a Monday evening at 9 o'clock to a case in consultation. The patient, a boy aged about 9 years, had been taken sick on the previous Thursday, with abdominal pain. He had had a number of attacks quite similar to this on previous occasions, all of which had subsided after a movement of the bowels, and most of which could be attributed, it was thought, to overeating. On Friday he played around the house, and in the evening went to the theater, still having some abdominal pain. On Saturday he played as before, and even went out skating on the icy sidewalks during the afternoon. On Sunday he still had pain, but it was not until the afternoon of that day that their physician was sent for. He found the boy in severe pain, but with an absolutely normal pulse and temperature. His bowels had moved freely, but he had been vomiting at times during the afternoon. The region of the appendix was entirely negative. Morphine was administered, and the patient was seen again that evening, when he still had a normal pulse and temperature. More morphine was given. The abdomen was absolutely scaphoid. Monday morning his pulse and temperature were still normal, but the pain severe. More morphine was given. In the afternoon there was the first rise of temperature, the thermometer registering 100.1°, and pulse 90. There was no vomiting and no localized tenderness had been made out at any time. In the afternoon the temperature was the same, but the pulse a little more frequent, and the physician thought he could make out an indistinct mass in the region of the appendix, though not positive of the diagnosis. At 8 o'clock in the evening the

temperature was the same, but the pulse 130. There was now some diffused tenderness over the abdomen, but not the slightest distention. It was at this time that I was asked to see the case in con ultation. The abdomen was typically scaphoid. There was a general abdominal tenderness, but this was very slight, most pronounced, perhaps, over the appendix. There was no vomiting. The pulse was 140, temperature 100.5°. The general appearance of the boy's face, however, showed that he was seriously sick. That the trouble was abdominal seemed certain, and on general principles I advised an immediate laparotomy, explaining to the parents that we expected to find the trouble originating in the appendix. They acquiesced immediately, the boy was taken to Grant Hospital, and the operation made at 11 P.M.

I made the usual incision over the appendix, and immediately pus poured out in considerable quantities. I found that there had not been the slightest attempt at the formation of any protective adhesions, but that the boy had a general purulent peritonitis resulting from a gangrenous and ruptured appendix. The incision was enlarged, the appendix removed, and the entire abdomen thoroughly washed out, my hand carrying the flushing tube clear up to the diaphragm so as to flush out thoroughly all around the spleen, stomach, liver, etc. Drainage was then passed down into the pelvis and up under the liver through a second incision made at that point. The patient was placed in bed, lying on his right side. His recovery was prompt.

Here was a case, then, going on from Thursday morning until Monday afternoon, without any elevation of temperature, and with practically no elevation of pulse, without hiccoughing, without vomiting, and without any abdominal distention, the rapid pulse coming on within only a few hours of operation being the only real indication present of any peritonitis.

I desire to refer to a point mentioned by Dr. Hall: I have personally not had a case of normal pregnancy following double pus tubes, but I do not see why it might not under certain circumstances occur. I recall a case of tubercular peritonitis upon which I operated a number of years ago. The adhesions were universal. I separated them widely and put in temporary drainage. The woman recovered promptly, picked up in flesh, and was entirely well except that at the lower angle of the incision there remained an annoying fistula. For the relief of this she came in some two or three years later and I operated on her for its closure. During the operation the abdominal cavity was again opened, and I was amazed to find how absolutely free the peritoneum was from all adhesions. It was about as healthy a peritoneum as one ever sees. In the light of this case I do not feel like saying that adhesions which are found surrounding the tube and involving the fimbriated extremity as the result of the presence of pus, may not entirely disappear so that pregnancy may follow. That pregnancy in many of these cases

would be tubal, owing to an unhealthy condition of the lining of the tube, would be certainly far from unlikely. Certain it is that we see conception taking place in some of these cases, even in cases in which we have every reason to believe there has been a fulminant involvement of both sides, though it may be said that the presence of the pus has not been demonstrated by actual operative intervention. I recall one such case in which pregnancy, ectopic in character, occurred sixteen years after what was supposed to be double pus tubes.

DR. LEWIS S. MCMURTRY, Louisville.—One great import of this paper is that it is a very valuable addition to the scanty literature of this particular phase of pyosalpinx, which relates to the puerperal condition. There is one feature of it that should be emphasized and that is in justice to the essayist, namely, the great difference there is in viewing any particular case before and after the revelations of a post-mortem examination or after the termination of the case. We all know that abdominal section in puerperal convalescence is a very serious step. We also know that the operation of vaginal incision and drainage so enthusiastically advocated and practised by Pryor would, in a case like this, accomplish very little, from the standpoint of therapeutics; consequently in the particular case presented this morning we have a valuable addition to the literature of the subject as to the possibilities of pathology of the tubes connected with puerperal disease, as well as a very valuable guide to operative interference. In a case of puerperal convalescence we all know that the entire array of symptoms presented prior to the collapse of the patient can be produced by the classical condition of puerperal sepsis, a fact with which we are all familiar; in other words, a septic infection of an uncomplicated character following normal labor. Day after day the symptoms intelligently interpreted would have indicated in this case a puerperal infection following labor. On the day preceding the collapse of the patient, the defervescence, the temperature subsiding and the pulse being within safe range, I am sure there is not a single Fellow who, if he had been introduced to that case, would have considered abdominal section, but in a few hours the patient was in a condition where no operative interference could avail anything; even anesthesia could not be produced, and then the pathology was exhibited by a post-mortem examination for the first time.

I take it that this case will be a valuable study for those of us who are assembled here this morning, in order that we may consider the possibilities of separating salpingitis in its relations to puerperal convalescence.

DR. JOSEPH PRICE, Philadelphia.—While I did not hear Dr. Elbrecht's paper, I have gathered some points in reference to it from the discussion. It is always interesting to hear reports of relief or recovery from all septic forms of peritonitis. Dr. McMurtry some years ago, when we were discussing this subject,

formulated a law which is now almost universally practised, in the shape of a toilet followed by well-placed drainage.

Returning to the forms of puerperal infection and the symptoms of peritonitis which are so commonly overlooked and wrongly interpreted, I have almost daily for the last twenty years discoursed at length to visiting physicians on this subject, and in two or three instances before medical societies. In state and national societies it would be a good thing if the Marquis of Queensbury rules were abolished in the discussion of this subject, because there are so many good clinicians and good practitioners who fail to understand the clinical significance of grave symptoms such as subnormal temperature. Patients with the angry, vicious forms of peritonitis seemingly are comfortable with subnormal temperatures, and have apparently a subsidence of some of the alarming symptoms. In one case recently a physician told me that the patient's temperature had declined from 101.2° to 97°, and that the patient, a boy, was feeling comfortable, although the day previously his suffering was so intense that hypodermic injections of morphine were required to relieve him. I had to operate on that boy for peritonitis that evening to save his life.

In a lively discussion on this subject, at a meeting of this association at Toronto, a few years ago, Dr. Murphy remarked that it was easy to save the interval patients in simple cases of appendicitis, but he would like to know how the septic suppurative or perforative forms of peritonitis could be saved. At a recent meeting of the American Medical Association, held at Atlantic City, he reported sixteen cases of infection and sepsis following intraperitoneal perforations in some form, all recovered, after his method of toilet and drainage. It was difficult many years ago to influence surgeons to make the effort to save patients when they recognized the precise nature of the trouble. After opening the peritoneal cavity, they looked upon them as hopeless and made either none or only imperfect efforts to arrest the infection or sepsis, to cleanse or drain. Now, a variety of toilets are practised; drains are either single or multiple, local or general. About every operator of prominence has recoveries to report and a special method to detail and publish. Some prefer the wet and some the dry. Some use simply glass tubes, others with drains, some few packs, and some few, deep cofferdams made of gauze.

Dr. Elbrecht (closing the discussion).—I regret very much that Dr. Price did not hear my paper, because I feel he would have discussed some points which he did not call attention to because of not hearing it.

Dr. McMurtry is the only one who has concurred in the views I have taken, and has endorsed my line of thought exactly. Almost all of the other speakers who discussed the paper have expressed themselves to the effect that they would have operated, but I am satisfied that there is not a surgeon present who would

have operated with such a clinical picture. Not one of you is more anxious to operate early than myself when indications warrant it, but with a clinical picture of ordinary sapremic infection of the puerperal uterus on the fifth or sixth day, there is not a man here who would have opened the abdomen of that woman. The autopsy findings show plainly how much good could have been accomplished by operative interference, or drainage, and it is for this reason that I report the case; also to bring out as strong as possible the striking similarity of the symptoms of this serious condition, to the more common and benign condition of puerperal sapremic endometritis, which may be complicated by a low-grade pelvic peritonitis. Furthermore, I want to say that if we operated on all these cases with the clinical picture as presented, with a pulse and temperature that fluctuated from day to day, I would operate on from twenty-five to thirty-five every year. At the hospital of which I have charge, we deliver approximately four hundred women a year; and out of that number twenty-five to thirty-five run the typical course of sapremic infection, in which on the fourth or fifth day the temperature goes up, and if you give vaginal douches for two or three days it will decline proportionately as rapidly as it came.

When this woman's temperature did not subside from the vaginal douches on the fifth day, we made a blood culture, and found it negative; which proved undoubtedly that it was not a general infection. Again, with foul smelling lochia, we had no right to believe anything else, as there were no symptoms of general peritonitis until the day before death. The group of symptoms mentioned were not sufficient to warrant operation until the peritonitis developed, and I think we all feel pretty much the same timidity about operating on puerperal women. I reported Hare's case simply to show how easy it is to infect an uninfected tube on the opposite side by curetting, as he admits that a pus tube developed on the pregnant side, as a result of so doing. This was a case, you will remember, where the fimbriated extremity was the site of pregnancy. His case had a pus tube on one side, and by stirring it up by curettage he transplanted the infection to the other side from the uterine end. Talley's case shows plainly that pus also travels around by the other circuit; that it escaped from the fimbriated extremity on the affected side and reached the unaffected side by way of the fimbriæ, as the infection was progressing towards the uterus; for that tube was not infected at the middle or inner third, and shows plainly that the infection must have come from that end.

DR. HAYD.—Did you make any cultures of the material from the tube? Unless you did that, you cannot be satisfied that this tube was not always involved; that the gonococci were not lying there in a latent condition.

DR. ELBRECHT.—You mean, then, that bacteria were there during impregnation?

DR. HAYD.—Yes, certainly!

DR. ELBRECHT.—There is a possibility that they may have been there, and may have lighted up by the hyperemia, but there is only a remote chance for that to have taken place.

The point has been brought out by a Frenchman, who says that virulent bacteria lie dormant in the tube until the hyperemia of pregnancy comes on, and when they get sufficient material to work on by distention and hyperemia of the tube they may spring into activity.

As to how this rupture occurred, I do not know. The omentum, you will remember, was attached to the fundus of the uterus and a portion of the left Fallopian tube, and the only explanation I can offer is that, by the expulsion of the placenta by Credé's method, we stretched the omentum, which was already stretched by the expulsion of the fetus, and pulled it off of the fimbriated end, where the leak existed. If the omentum had not been adherent, I doubt whether this tube would have ruptured.

SOME CONSIDERATIONS ON THE AFTER-MANAGEMENT OF ABDOMINAL SECTIONS.

BY

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Brooklyn.

In saying what I desire to present on the above topic, I shall assume that proper care was exercised to insure the best possible condition for operation, which should include the previous building up of the patient by hygienic measures, proper diet, the use of such medicines as would put the digestive, eliminative, nervous, and muscular systems in the best possible condition to withstand the shock and debility incident to the operation, with the patient's vital powers raised to the highest degree of resistance. This will include such a wise management of the case on the part of the attendant as will relieve the mind of anxiety, which in some cases demoralizes the patient to such a degree as to menace the results of surgical interference, and the safety of the patient.

In reviewing my personal experience I am led to the conclusion that the principal and by far the most frequent disturbing condition after laparotomy requiring treatment is flatulence. The accumulation of gas in the intestinal tract is present to a greater or less extent in a majority of cases. The principal causes are reversed peristalsis, intestinal paresis, and the effect of the anesthetic.

Nausea and Flatulence.—The causes of nausea are multiple and should be carefully differentiated. If reversed peristalsis continues, nausea, or nausea and vomiting will follow. Among them should be further noted the results of anesthesia, shock, peritonitis, uremia from suppression of urine due to the anesthetic, and the nausea and vomiting induced in some patients by the administration of morphia, and by septicemia. The local influence of hot water on the nerves of the stomach to allay both nausea and vomiting is well established, while stomach irrigation often affords marked relief. I usually commence the use of ʒi to ʒii of hot water as soon as it appears after the operation.

In persistent functional vomiting small doses of cocaine, gr. 1-12

to 1-10, given by mouth, are very efficient, acting at the same time as a powerful nervous stimulant.

I seldom give anodynes except in conditions of pain, making a possible exception in cases when peritonitis was present prior to the operation, or other structures involved in the operation were so friable that peristalsis should be prevented for a time, or in cases following intestinal anastomosis. Its administration for the relief of pain is admissible and perhaps mandatory. It is a matter of much moment what anodyne is selected. Ordinarily I use codeine hypodermatically in doses of gr. ¼-½, or more if required. While its power to relieve pain and check peristalsis is much inferior to that of morphia, its lesser disturbance of the nervous system, checking of secretions, and tendency to induce constipation makes it an agent of great value. It is imperative that a reliable preparation be used. Unless one knows the susceptibility of the patient to the disturbing influence of morphia, especially its liability to induce nausea with vomiting, there is no way of knowing whether these symptoms are the result of the drug, whether it is due to the anesthetic, or to some independent cause connected with and growing out of the patient's condition. A grain or two of codeine may be taken hypodermatically without discomfort. given in divided doses until the desired results are obtained. In troublesome cases of continued nausea the administration of small doses of cocaine, gr. 1-10 or 1-12, exercise a salutary sedative influence on the nerves supplying the stomach, and is attended with happy results. Either the nausea or flatulence, or both, may disappear in a few hours after operation.

Occasionally the flatulence is of longer duration, and frequently very persistent. When it persists, it may be necessary to use salol or some other intestinal corrective. Except in conditions already noted, efforts to evacute the bowels should be instituted within twelve to twenty hours subsequent to the operation, and in some cases earlier.

In these conditions the giving of drastic cathartics, vegetable or mineral, is of doubtful expediency. Should the feces become hardened, high enemata containing ox-gall are useful, and a similar administration of warm olive oil facilitates an evacuation. An alum enema in reversed peristalsis often has great efficiency.

Not infrequently the rectal tube, passed high enough to allow the escape of the imprisoned gas, will add greatly to the comfort of the patient.

Among the newer remedies for the relief of intestinal paresis

is the alkaloid of the Calabar bean. Salicylate of physostigmine, given in doses of gr. 1-100 to 1-50, or even more, hypodermatically, repeated once in four hours, seems to induce a powerful contraction of the circular fibers of the intestinal tract.

Fortunately the vomiting of anesthesia subsides as the blood is freed, by respiration, of its presence. If due to peritonitis, the treatment must be directed to a removal of the cause. Testimony is increasing that ice, or the abdominal coil filled with ice water, has some controlling influence in the treatment of peritonitis. Drainage, with the shoulders of the patient elevated to a greater or less degree, has been proven by the Fowlers to be surprisingly effective in septic peritonitis.

If we except peritonitis of traumatic origin, the plain indication in all these conditions is evacuation of the bowels. In presence of nausea with or without vomiting cathartics administered by mouth are unlikely to be retained, and the ability of the stomach to absorb fluids is lessened and often abolished. Under this condition calomel may act in a very salutory manner. Given in one-tenth or one-fifth grain doses, hourly, it is sometimes most effective. The antiseptic and sedative influence of bile on the intestinal tract is too well known to require comment. If, as has been claimed, the stimulative effect on the secretion of bile prevents the resorption of the bile, as is usual in health, its value is easily seen. Following or associated with this a high enema of half a pint or a pint, containing from one to three drams of sulphate of magnesium, repeated once in four hours, is usually effective.

The passage of gas by rectum after laparotomy is always a sign of hope to the operator and a source of relief to the patient. Liquid stools at this juncture are an added proof that reversed peristalsis or incipient paresis of the intestines has diminished or has disappeared. My experience with cracked ice, or cracked ice and champagne, once so popular, is on the whole disappointing, and I now use it infrequently. The power of ice to lessen thirst is too often delusive. In fact in health the holding of ice in the mouth for some time, creates an irritation resulting in thirst, which is prolonged surprisingly after its use is discontinued. Partial or complete suppression of urine is occasionally the essential factor in producing nausea and vomiting. Its relief depends on prompt establishments of the renal function. In order of efficiency the following remedies promise most; dry cupping; catharsis by high rectal enema containing salines; rectal irrigation, and if the pa-

tient's condition permits, particularly if accompanied with dry skin, one-tenth grain doses of pilocarpin. In septic conditions involving the abdominal contents, prompt catharsis, pelvic drainage with the shoulders elevated when drainage is admissible, with the use of antitoxins, and free stimulation are the measures most likely to conserve the life of the patient.

Diet.—The diet of patients after abdominal section calls for the greatest circumspection, always following the rule that nourishment, by the mouth, before the stomach retains or digests it, is positively harmful. My custom usually is to commence the use of hot chicken or mutton broth as soon after laparotomy as it is retained and digested. This may be succeeded by predigested albumin and the juice of lightly broiled steak, as soon as the stomach will tolerate it, to be succeeded by farinaceous food—preferably well-cooked rice. The notion that animal food alone is applicable in these cases is based on a misconception of the needs of the economy and its supposed unfitness to fulfil the indications present. As a rule, the use of milk, unless it has been peptonized, had better not be ventured upon. The liability to a form of mild ptomaine poisoning from undigested curds of casein has doubtless added materially to the avoidable mortality of laparotomies. When the appetite is lacking and the stomach will not digest food, resort should be had to high nutritive enemata of digested milk, concentrated beef juice, and if indicated, whiskey. In this connection the nutritive and sustaining power of alcohol should not be neglected. When the digestive power of the alimentary tract is reestablished a full diet, tempered with proper discretion, should be employed.

Shock.—The avoidance and mitigation of shock in abdominal operations calls for the most careful observance and treatment on the part of the operator. The predisposing causes embrace every influence which impairs the normal vigor and vital resistance of the patient. The exciting causes of shock are direct traumatism, including the exposure and manipulation of the pelvic contents, hemorrhage, and septic conditions, to which must be added the influence of anesthesia and abnormal reduction of bodily temperature.

Shock is attended with grave disturbances of the sympathetic nervous system. Vasomotor paralysis and vasomotor spasm mark its onset and continuance. The causes which lead to it are multiple and complex. These vasomotor disturbances appear differently in different cases, or perhaps alternate in the same case.

In one case there is inhibition of function, in another overstimulation. The causes which lead to general capillary stasis with capillary dilatation must be distinguished from those which are due to capillary spasm and resulting spasm and closure of the same vessels. From the physiological standpoint, digitalis or ergot should relieve the former, and nitroglycerin the latter. There must, however, be some limitation as to the application of remedies from their established physiological effect only. Unless their therapeutic influence corresponds with their physiological effect their use should not be carried too far.

A correct analysis of the cause of shock leads to correct and rational treatment. Sometimes two or more causes operate simultaneously, and it is to meet the real indication that correct deductions are so needful. This embraces the after-influence of anesthesia and internal hemorrhage. So, too, the influence of traumatism, *per se,* and hemorrhage may puzzle the attendant. Persistent hemorrhage (which demands opening of the peritoneal cavity) is attended with persistently increasing muscular weakness and rapidity of the pulse, and is not so susceptible to relief by stimulation of any kind as the depression due to traumatism. In fact, the former may be aggravated by any heart stimulant.

Without attempting to follow out any exclusive line of reasoning as to the physiological or therapeutic application of drug medication, both on the circulatory and nervous systems, I desire to make some suggestions as to their rational and empirical use.

Exsanguination from hemorrhage, causing an arrest of muscular contraction of the cardiac muscle, arising from absence of blood in auricle or ventricle, cannot be remedied by any form of heart tonics. Change of position, which by gravity facilitates the return circulation, may be useful. The rational remedy is to give the heart its natural stimulus—a new volume of fluid. No time can be lost in subcutaneous saline injections, but the sterile normal salt solution must be introduced directly into the venous circulation. In operations following ectopic rupture, where the bleeding points had been secured, I have seen apparently hopeless cases, absolutely pulseless, quickly rescued by injecting a pint and a half of salt solution into the median basilic vein, and succeeded by rapid convalescence, when cardiac and general stimulants had been wholly unavailing. When, in shock, there is overstimulation of the cardiac inhibitory apparatus, attended with infrequent pulse and vital depression, atropine is the remedy, *par excellence.* The paralyzing influence of atropine on cardiac inhibition is so prompt

and salutary, as to make it, so far as our present knowledge of drug action goes, the rational therapeutic and physiological remedy.

When shock manifests itself by cardiac muscular weakness and want of nervous energy, strychnine, hypodermatically, is among the most efficient remedies, gr. 1-40 or 1-50 once in three hours, not exceeding a maximum dose of gr. 1-6 or 1-5 per day. Perhaps next in efficiency are sparteine sulphate, gr. 1/8-1/4, or caffeine, gr. i. To get the best results from sparteine it should be administered once in three hours. The former belief that a grain in twenty-four hours was a maximum dose is a mistake. Double that quantity may be given, unless its power is manifest.

After all, when shock is profound, minute doses of morphine sulphate are among the powerful stimulants, and superior to most others for prompt and sustained effect.

Bodily Temperature.—The attendants and nurses who lack a lively appreciation of the necessity of maintenance of temperature up to the normal standard of the body subsequent to laparotomy, are liable to create a loophole of danger, into which their charge may unwittingly fall. I say "attendants and nurses," for if the attendant does not recognize its importance, the nurse can hardly be held responsible. Subnormal temperatures demand *immediate attention.* Keep the patient dry and warm. When subnormal temperature is attended with profuse perspiration, drying the skin is of the highest importance. Evaporation of moisture always depresses temperature. To combat this, one aid I have never seen mentioned, but to which I have resorted for years, is the application of dry heat for the double purposes of stimulating and drying the cutaneous surface. This is accomplished by enveloping a piece of hot brick or pottery in linen cloth, which is passed slowly over the skin, underneath the bed covering and clothing, by which area after area is made dry and warm. By such method the best effect is most speedily obtained. Unless the condition of the circulation and pulse contraindicate, atropin, gr. 1-100, should be used hypodermatically.

In conditions of great depression, due to inadequate power of circulation, the lower portion of the trunk should be elevated and the head lowered. This aids in restoring and maintaining a proper supply of blood to the brain.

To want of discrimination concerning special heart and nerve stimulants, with imperfect appreciation of their application, judged first from their physiological action, second, by their therapeutic

effect, and the exact indications for their use, is chargeable some of the disasters which mark the work of well-meaning and skilful operators.

Position.—The position of the patient in bed after laparotomy has received too little consideration. Enforced immobility of the patient is in most cases a species of refined cruelty. Without entering into a discussion of the causes of the atrocious backache which usually follows laparotomy, its relief is entitled to consideration. First, the sagging of the spinal column occasions a dragging on and weariness of the lumbar muscles which needs relief. Often a hard pillow or unyielding roll of cloth, lifting the small of the back, is a source of great comfort. Elevation of the knees tends to relieve the tension, and is grateful. Intestinal distention is an important factor in this ailment, and its relief is most grateful. The pains of flatulence must have appropriate treatment. Enforced extension of the legs is usually uncalled for. Too often, after the anesthetic, the head has no support of the pillow. This increases epigastric tension and often occasions unnecessary distress. Raise the patient's head to the degree most comfortable. Except after intestinal anastomosis, or the suturing of friable structures, begin as soon as possible without augmenting abdominal pain or tension, to roll the patient from side to side, until the most comfortable position is found. When for sufficient reason rigidity is required, give lateral support to the thighs and legs to relieve the involuntary strain which follows effort to prevent rolling of the legs. In changing the position of the patient mechanical support is required; do not rely on some compressible material like a soft pillow. Use something of more resistance—a tightly rolled blanket, a book, or some other incompressible object—covered with something soft. These considerations add not a little to the sum total of comforts which count in the ultimate finale of success or failure.

DISCUSSION.

Dr. James F. Baldwin, Columbus, was called upon to open the discussion, and said:

I was very anxious before saying anything on this paper to hear from some of the older members. The paper is an excellent one, and I do not know that there are any points to which I would care to take any special exception, although two or three statements made by the essayist seem to be at variance with

the teaching of some of our surgeons for a number of years past. I was glad indeed, that Dr. Chase referred favorably to the use of opiates under certain circumstances after operations, advising their use in fair doses, especially codeine. I see no particular objection to the use of the stronger opiate, morphine, especially for the first night, if there is considerable pain. I was also pleased that he referred to the moving of the patient from side to side for a few hours following operation, advising also that the patient be allowed to move herself as soon as she felt able.

As to the use of dry heat following operations, especially if there is any tendency to a subnormal temperature, the form of heat which we have found most comfortable and satisfactory is that secured from the use of an electrically heated pad. These pads practically weigh nothing, and give a very uniform and pleasant temperature. They are easily applied to the irregularities of the body, and seem to be devoid of risk so far as the production of burns is concerned, in this respect being very much better than the time-honored hot water bottle.

Another point which the essayist mentioned, but which he did not accentuate as much as I have been accustomed to for the last two or three years, is regarding the use of fluids after operations. The teaching of Tait, only a few years ago, was that no fluids whatever were to be given for forty-eight hours after operation, no matter how much the patient might be suffering. In a recent work, a copy of which I received within the last week or two, the post-operative treatment of section cases is considered by a foreign surgeon, and I find that he recommends abstention from fluids for the first forty-eight hours, though a little later in his work he seems to depart somewhat from this position. For the last two or three years in my own work I have been allowing patients to take water as freely as they wanted it. If they vomit, as they may do after taking it, it has washed out the stomach, taking with it more or less ether, and since allowing this free use of liquids our patients have suffered very much less from nausea and prolonged vomiting. We give the water hot or cold as the patient may prefer, or give hot tea if that is preferred. The hot water probably relieves the thirst a little better than the cold. Cracked ice, however, is a delusion and a snare. It is pleasant to take, but does not relieve the thirst, and probably keeps up the vomiting.

DR. FRANCIS REDER, Saint Louis.—I have been very much pleased with the paper that has been presented. We know that we have some patients who do not require any attention after a laparotomy. Then, again, we meet with patients where everything we can do for them will bring no relief. I was particularly gratified with the allusion of the essayist to the care of the patient relative to position. Frequently we leave this entirely to the nurse. If we can get a nurse who understands thoroughly the methods of the doctor for whom she is nursing, and who is familiar with his directions, this is very satisfactory; but, as a

rule, I believe it is the surgeon's duty to look after a patient carefully for the first forty-eight hours after operation. The only exception I take to the moving of the patient is immediately after operation. There is a great deal of danger connected with the moving of a patient the first forty-eight hours after a laparotomy. I have had a number of unfortunate cases of thrombotic formations incidental to handling or moving of patients shortly after operation. It is true sometimes a patient's position must be changed. If so, take an additional bed sheet and place it under the patient, allowing a goodly portion to lap over on each side of the bed, the sheet reaching from the nape of the neck down below the hips. When the changing of the patient's position becomes imperative I instruct the nurse to take hold of the sheet and gradually pull it away from the patient. This will enable us to turn the patient on one or the other side. Furthermore, we can have proper pillows constructed, or, as the essayist says, rolls of blanket. For instance, we can flex the legs of the patient and place a pillow or roll of blanket underneath them, but when we wish to support the back and the various recesses caused by the contour of the body, we can give our patient much comfort with such pillows. I think it is well to support every part of the patient's body subjected to a strain, no matter how mild, because no one knows unless he has undergone a laparotomy himself what it is to suffer with aches and pain about the back. We should aim to relieve all strain, thus affording the patient the greatest comfort. Great comfort is necessary for the first forty-eight hours, as it contributes to the assurance of a happy result.

DR. LEWIS S. MCMURTRY, Louisville.—This subject is a practical one. It interests every Fellow of this Association, and it may not be amiss if we have a thorough and free discussion of it. I am sure in the early days of abdominal surgery we went to extremes, such as, for instance, requiring a long period of punishment to the patient by having her kept perfectly still on her back, and abstaining from all fluids for the first forty-eight hours, and avoiding all movement of the body. Now the tendency is to be a little radical in the other direction.

Since this Association began its meeting this morning, I have been informed by a gentleman that there is a distinguished surgeon in this city who pursues the practice of having his patients get up the next day, and even go out of the hospital at the end of a week after abdominal section. Before the Military Surgeon's Association this man showed a case of double pyosalpinx in which he made a long incision, enucleated and removed two universally adherent tubes, and removed the appendix. The operation was done at five o'clock in the afternoon. He sewed up the wound and the patient was drinking milk the next day at eleven o'clock. This information I am giving to you is absolutely reliable. There is also a surgeon in Chicago who has advocated practically the same method. and is practising it

after abdominal sections. He allows his patients to get up the next day and go about; while at the end of a week they are sent home and told they can go where they please and do whatever they desire.

It seems to me that this is going to an extreme, and here is the particular place for us to consider for a moment those surgical principles that are classical in the treatment of wounds, and apply them with common sense and good surgical judgment. Let us suppose we have a wound of the soft tissues of the arm or of the leg, or of the bone. We know that in the application of splints, in case we have to deal with injurv to bone, the object is to secure rest of the parts and to facilitate healing. This principle of surgery is well established. It is one of the things we know and have learned, and it is difficult for us to get around it. It does not facilitate healing of a wound materially for a patient after an abdominal operation, in whom a long incision has been made, to get up the next day, and at the end of a week to be turned loose to do whatever she pleases. So we have the two extremes. I believe a middle ground is the correct one for us.

Dr. Samuel W. Bandler, New York.—I have just a few words to say as a contribution to some of the observations made by the reader of the paper. One point that has interested every surgeon for a great many years has been the question of vomiting after anesthesia. I wish to mention a procedure which I have adopted for the past few years, and which to me has seemed to be of some advantage, and it is this: immediately after a patient comes out from under the influence of the anesthetic she is given every half hour one or two teaspoonfuls of iodopeptonoids dissolved with ice until half a small whiskey glass is taken. This is given every half hour, whether the patient vomits or not. In my private cases it has always seemed to me that these patients ceased vomiting earlier than they did ordinarily. However, my house surgeon has informed me from his observation of patients in the last two years that he thinks they vomit as long after this method as they did with the ordinary method of giving them, sparingly, hot water, ice, and the like.

Another agent to which the essayist called our attention is the use of physostigmine. Every one of my cases of laparotomy is given an eightieth of a grain of salicylate of physostigmine hypodermatically every three hours. It has seemed to me that intestinal action is better after its use. The patients pass gas earlier than they formerly did, although the house surgeon at Post-Graduate Hospital told me that the patients, in his opinion, were no better seemingly after this method than without it. However, with the use of physostigmine and with iodopeptonoids I feel I am doing something, and perhaps in that way it is a mental satisfaction to me.

As regards the statement which was made by the last speaker

concerning the early getting up of the patients from bed after abdominal operations, I can only say that this distinguished New York surgeon is a friend of mine. I have watched many of his operations, and I must confess it is surprising to see him operate, for instance, at four o'clock in the afternoon to-day, doing an abdominal laparotomy, and to-morrow afternoon he will have that patient sitting up and walking around the wards. He operated for ectopic pregnancy at ten o'clock at night on a patient who was infused after operation. The next afternoon at four o'clock she was sitting up, and the day after was walking around the room. He permits that frequently. A man must be absolutely certain as to his sutures in order to do this.

I am an advocate of vaginal surgery, and one advantage of the vaginal method is that the patient is enabled to get up quickly. For instance, after a vaginal operation the patient may be able to sit up on the third day, and on the fifth day can go home. Now, with this method of letting patients up the day after abdominal operations, almost the last prop, so to speak, in support of the vaginal operation is taken away. If a patient can get up on the second or third day after one of these operations, then there is no advantage in that respect, it seems to me, in operating vaginally.

About ten days ago, however, I did a vaginal hysterectomy with clamps at the Post-Graduate Hospital. On the third day I permitted the patient to sit up. Her bowels were moved by calomel at the end of twenty-four hours. She was sitting up and ready to be put on solid diet. On the fourth day she began to vomit. On the fifth day she still vomited, but nothing was effective in moving her bowels. Meanwhile she was getting physostigmine. She passed no gas and no feces. This state of affairs continued for four days, so that the patient was starving. I made a diagnosis of intestinal obstruction. At the second operation there was found a knuckle of intestine which was adherent to the margin of the vaginal wound (I operated the second time abdominally), and to a further bit of intestine, making an S-shaped double obstruction. The obstruction was relieved. If I had operated vaginally this second knuckle of adherent intestine might not have been recognized and would have continued the obstruction. The patient did very well for a time, but as the result of starvation and shock, died. This case taught me, personally, one danger of letting patients sit up so early.

DR. HERMAN E. HAYD, Buffalo.—This paper brings before us the whole subject of abdominal surgery. Gradually, by a process of evolution, we become reasonable and scientific. It was just as absurd a few years ago to say that every case should be drained as it is absurd now to say that no case should be drained. A certain class of cases require drainage, while another does not. It is just as absurd for us to say that a patient

should not drink water because it extends the bloodvessels, and in this way promotes hemorrhage. Drinking is not harmful if it does not provoke vomiting. A patient should be restrained, should not move, and should not be allowed to get up too soon after operations. She should lie on her back with a pillow under her knees for the first twenty-four hours and told to relax. If a man is to be successful in his surgical or medical work, he must employ some common sense, and it seems to me that element exists less in medical men than any other professional men I know of. Every day I come in contact with men who surprise me by the absurd concoctions they are giving surgical patients, and also by the absurd directions they are giving them. It seems to me we will accomplish most in the treatment of these cases if we appeal to the common sense and judgment of our patients. For instance, there is not a patient, if he or she be old enough, and is intelligent, who cannot be reasoned with. I say to a woman: "Lie quiet. If you want to move on your side you will be in pain, but if you don't believe me, try it"; and usually they will beg to get back again on the back, as that is the most comfortable position.

In regard to the use of hot water bottles on the back and rubbing the back or propping these patients up with pillows, it does no good. I never saw anything in my life that helped a backache after an abdominal operation. The more you do for these patients after operation, the more you have to do for them. They are then dissatisfied and discouraged with the efforts you are making for the relief of their sufferings, but if you tell them in twelve hours they will be comfortable and to fight it out, they get courage.

I could not help but feel what absolute rot it is to tell a patient who has been mortally wounded by a big abdominal operation to get up the next day, and in two or three days or a week thereafter to walk around the wards. This is the most absurd teaching that it is possible to promulgate and practise. In other lines of surgery, we do not give such advice; for instance, what do we do in the case of a broken bone? We keep it functionally at rest, so far as it is necessary toward proper union, and so it is in connection with all abdominal operations.

With regard to the administration of agents for vomiting, like physostigmine or iodopeptonoids, I have found that there is nothing that helps these patients much. As a rule, these agents and medicines cut both ways. It is just the same with morphine. It may help, but it often does great harm. By contributing as much as you can to the confidence of the patient and by encouraging her, by reason of your own personality and by reason of your enthusiasm in your work, you will accomplish more than you can by the administration of medicines. However, if there be much straining, nausea, and vomiting, sips of very hot water are beneficial, and sometimes ʒss. or ʒi. doses of milk of magnesia every hour for a few doses does good.

Again, drinking a glass or two of hot water to give the stomach something to vomit up and wash it out, relieves the condition; but I will repeat as a rule I get the best results from doing nothing, and I see less stomach irritability since I have made it a rule to give all my abdominal operation cases a salt solution infection per rectum before they leave the operating table—unless contraindicated on account of some bowel injury.

DR. JOSEPH PRICE, Philadelphia.—We have had many papers and discussions from time to time with reference to the preliminary preparation and after-care of patients who have been subjected to abdominal section. The essayist has gone into the subject very fully, but his paper should not be published without a full and complete discussion by men with large and varied experiences, who are familiar with the early as well as recent work in abdominal surgery.

We have made wonderful progress, and America has contributed more to abdominal surgery than the rest of the world. In our recent progress we have lowered the mortality very materially from these operations. In short, the mortality of every well-trained operator in this room is lower at present than it was a few years ago. We have more confidence in our methods; more confidence in the preliminary and after-care of our patients. There is less fuss, feathers, and foolishness about the care of our patients.

While it would seem that some men are trying all sorts of things and are getting a little notoriety occasionally, some procedures should never be admitted in abdominal surgery, particularly that of allowing patients to get up prematurely. I regard this getting up of patients prematurely after abdominal section as cruel.

The operator loses sight of what takes place in the healing of wounds in both the long and short incisions in healthy patients; the rest should be prolonged for both organization and consolidation.

Let me say a few words about the after-nursing of these patients. Our nurses are doing better work than they ever have done. They command the respect of lay people, and they are held in higher esteem than they ever were before. The position of the trained nurse is a fixed one in the community. She is more than an intelligent young woman, and the better class of young women are found entering our hospitals. We look upon the nurse as a specialist. She is better paid to-day than in the days gone by. We have relays, so that nurses now take care of patients just as certain engineers by the relay system take care of trains. On some of the transatlantic steamers, for instance, engineers go on watches every four hours.

Meddling with patients after abdominal operations is a mistake. Prepare your patients well by the use of calomel. I have heard of surgeons in good standing opening the belly and throwing in salts before the patient left the table. If such

patients had had careful preparation such a thing would not have been needed. There is nothing I value more highly than calomel and Rochelle salts in preparing a patient, if I see the patient in time. It gives one a better opportunity to make an accurate diagnosis. With full bowels we may not be satisfied with our diagnosis, but after the bowels are emptied our diagnosis is much more refined. We have a better mental picture of the case, and of how we are going to operate. It is difficult to make a bowel do badly after clean surgery, because there is nothing in it to cause distention after it has been emptied. If you have a bowel full of calomel, you have the germs going the way they ought to go.

There is a good argument in favor of house-to-house operating. My mortality from house-to-house operating is nearly *nil.* My brother did seventy-two appendix operations in New Jersey without a death. The patients, full of pathological fluids and products, were not churned in transportation. You have a better chance to save them by operating on them in their own homes than you would at a hospital after they had been transported ten to thirty miles.

We do nearly as much mischief by letting these patients get up prematurely and move about as we do in transporting them many, many miles. I do a great deal of surgery away from home, and with our present methods of caring for patients it does not make any difference whether they are operated on in prisons or in insane asylums, the after-care of them is practically the same.

Calomel and Rochelle salts may be used within the first twenty-four hours after these operations, if thought necessary. Attention should be given to the rinsing of the mouths of patients, and to the free use of hot water. Hot water does no harm. The last thing I say to the nurse is, "Give the patient every little attention, and nursing consists in a great many little attentions. If a patient has some vomiting, some straining, give her a glass of hot water, as hot as she can swallow. Let her drink a whole glassful." She will then have something to eject. The hot water washes out the stomach; it relieves her of the scalding and burning from bilious matter, and makes her comfortable. Again, we should encourage these women to relax the muscular system, to flex their legs, to put them at right angles with the body. We should change their position, but this should not be done very often. These little attentions to patients do not become irksome. Some of these patients are as rigid as iron, and it is not an easy matter to induce them to relax their muscular system; but when they do flex their legs, change their position and limber themselves up like a discloth, so to speak, they then pass flatus, which was causing them so much discomfort.

One great trouble we have to contend with is that many physicians want to give patients nitroglycerine and nurse them

with hypodermic injections, to allay their pains and discomforts. Only recently I lost a big fee on account of hypodermic nursing. Marvel asked me to go to Atlantic City to see the patient of a noted surgeon. At about the same time a physician asked me to come to Germantown to operate for him. I told him I could not go. Deaver went out, operated, and got a good fee. I went to Atlantic City and saw two nurses standing back, gazing at the patient, who did not know what to do. She was restless and crying out, and hardly looked human. I asked the nurses how many hypodermics the woman was getting a day. They said she had had seven. I had a chat with the attending physician and told him that too many women were being nursed with hypodermics, and to give instructions to discontinue their use. This was done, and the woman soon got much better and made a nice recovery. A number of patients are nursed with the electric button and hypodermic injections of morphine. Go into a large institution: when the bell rings one of the nurses will go to the indicator and say to this or that nurse, "That is your call." That is what I call nursing with the electric button. There should not be an electric button in any hospital.

The little attentions nurses give to patients mean much. We should strive to do all we can to make them tactful, to have them study our methods and means of making patients comfortable. We are schooling them to do these things, and it is important that we should do it if we are teaching nursing. I have made my argument largely in the interest of nursing. I care little or nothing about medication. I do a hundred abdominal sections for every prescription I write.

There are plenty of good men, like Morris, Deaver, Hayd, and McMurtry, who can do good surgery without drainage, but they can do better surgery sometimes with it. I do not interfere with a man, whether he drains his cases or not. That is his business, and I say less about it than I did years ago. I drain cases now that I did not drain formerly. Notwithstanding we have made wonderful progress, we are operating on groups of cases we refused to operate on years ago. If we find the pulse of the patient beating, we operate.

In conclusion, I want to repeat that the after-treatment in the class of cases under discussion is largely let-alone treatment. What the essayist has said about warm applications and the like, is true. They are comforting to patients, but we can get the same results by little attentions to these patients. I never use a hypodermic injection of morphine either before or after operation.

Dr. Chase (closing the discussion).—I think our president gave me an undeserved compliment when he spoke of my paper as an exhaustive one. It was simply intended to be suggestive, and it has brought out such a discussion as I like to hear. There is undoubtedly a happy medium in which there is safety. As to allowing patients to get up and move about two days after

operation, I am sure I shall never succeed in doing this, for the reason that I shall never try it. Before such gentlemen report these cases in order to give the profession confidence in their methods, they must give us their results. How many of these patients at the end of three days, three weeks or three months are in their graves? When we ascertain that fact, we can judge whether the premature getting up of patients after abdominal operations is proper treatment or not. The question resolves itself very largely into one of mobility or immobility, and of whether we shall use fluids or not. My distinguished confrère, Dr. Price, has said that we should strive to nurse our patients in such a way as to make them comfortable. Slight shifting of patients from side to side gives them comfort. We should make them comfortable after operation, if it is within our power. If there is not vomiting, do not give anything. If you can afford relief by hot water alone, do so. I suggested a remedy which is very useful in these cases, and that is physostigmine. True, as Dr. Price suggested, very much depends upon the proper preliminary preparation of the patient. My paper assumed that had been done. When we get paresis after operation we may be in doubt as to the cause of it. It may be due to an overdistended condition of the intestines from gas, or from handling of the intestines during operation and from old or recent intestinal adhesions. I find there is a close relation between traumatism from the handling of the intestines, and the getting up of the patient. If your operation is one that requires a short incision, you may have little or no trouble. Physostigmine contracts the muscular circular fibers of the intestine, and because of this, is an invaluable agent.

SOME GENERAL PRINCIPLES IN CONSERVATIVE PELVIC SURGERY.

BY

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This subject will be considered under the several postulates named in the abstract printed in the program, which are:

1. It is decidedly advantageous to have a general knowledge and a general experience before making use of special methods in the treatment of pelvic disorders.
2. Medical and mechanical means should be tried in suitable cases before resorting to surgical intervention.
3. Only diseased organs should be removed.
4. Sound organs and normal parts of unhealthy organs should be preserved.
5. Conservative plastic surgery should be employed to save such organs as can still be made functional or to serve some useful purpose.
6. Diseased organs should be removed in the order of their pathological precedence and importance, with a view to benefit the patient by promoting her comfort and prolonging her life, even if a perfect cure is not to be expected.

THE elementary and fundamental knowledge which a student of medicine must have before he can practise is now regulated by law. Formerly a graduate of medicine might begin the practice of his profession with comparatively little preparatory knowledge and experience. The knowledge which such a graduate had acquired was general in the sense that he was expected and required to know something of the various branches of medicine, surgery, and obstetrics, but he knew practically very little of any one of the general subjects, and he certainly could not have practised exclusively and with that degree of precision and comprehension necessary for success in such a specialty as that of the eye, the throat, or the female pelvic organs. A specialist who has had neither a general hospital training nor a general private practice, cannot have that exact and comprehensive view of his subject which *he* can have who has had long and thorough and general training under the guidance and instruction of experts, or who has worked out his own experience at the bedsides of private patients afflicted with all manner of diseases. To have the necessary general knowledge which prepares one to recognize the variety of disorders which affect

the various organs of the body, and to be able to distinguish the priority of a particular malady and its bearing upon other maladies, as well as to know which organs are essentially normal and which are essentially diseased, presupposes a general knowledge and a general experience which an exclusive special practice can scarcely supply. Certain local and specific abnormalities may be recognized, and a course of artful treatment prescribed, but an acute, accurate, exhaustive diagnosis of the disease or diseases present is not to be confidently looked for.

When a specialist combines the knowledge and experience acquired in general study and general practice with the knowledge and experience which specialism affords through detailed observation, experimentation, and concentration of thought, he should have an equipment for efficient and successful practice which should be well-nigh irresistible and irreproachable. Even the laity regard a strict specialist as narrow, and some members of the profession, as well, consider absolute restriction to specialism as dwarfing to the professional mind.

A specialist in law, in engineering and in the sciences should have more than a smattering of knowledge of the principles of his profession and of collateral subjects. Specialism in medicine, as we all know, has already been carried so far as to have almost caused the passing of the "family physician."

Some are disposed to think that this is fortunate and really to be desired, but not a few regard such a sweeping change as deplorable.

In the treatment of pelvic diseases a knowledge of general internal medicine and of the general principles of surgery is of the first importance to the patient, and must be of the highest advantage to the physician himself. Why the reader believes this to be so will appear further on in the conclusions which may be drawn from the several propositions of the abstract.

Our second proposition would have met with more favor a quarter of a century ago than to-day. And the physician then and at the present time would be more in accord with the therapeutics and practical use of medical and mechanical means of treating pelvic diseases than the surgeon would be. We may dare to say that surgeons welcomed the coming of operative measures as substitutes for medical and mechanical methods of treating pelvic disorders, for they, before all others, had become skeptical and discouraged at the tedious and uncertain course of treatment in those diseases locally considered.

Had the physicians of twenty-five years ago known as much about the diseases of the nervous system as is known at the present day, had they known of tuberculosis, had they known as much as is now known of the effect of one deranged function upon other functions, had they been able to understand the bearing of a particular disease on the rise and course of certain other diseases, in the light in which it is now understood, they might have had much greater success in the use of non-surgical means, and the day for a medical change would have been postponed, and the transition from nearly exclusive medical treament to almost exclusive surgical treatment would have been markedly modified and, it may be postulated, to the advantage of all concerned. The wholesale wiping out of gynecological therapeutics was unique as compared with reforms in other specialties. Aurists kept on with tentative methods of treatment and did not stop catheterizing and electrifying the Eustachian tubes; laryngologists continued to swab the nostrils and to spray the windpipe. All the acute inflammations and catarrhs recurred as usual and were sounded and injected and powdered much the same as before, while it became derogatory to a physician's reputation for skill and common sense to employ similar time-honored means in treating kindred affections of the vagina, the endometrium, and the Fallopian canals. The art of using a pessary and the tamponade was nearly if not quite lost, and, with the loss of the art and skill and ingenuity which had made the gynecologists of years ago masters of the methods they employed and found useful, there came the detraction and the abomination which led to the almost complete abandonment of everything medical and mechanical, whether good or bad. Those who have had much experience in the use of pessaries and tampons know that they are neither quite useless nor wholly pernicious. A well-formed and properly fitted pessary may be very useful in some cases of uncomplicated displacements of the uterus; either as a temporary expedient or curative, especially in postpartum conditions. The wool-tampon (also a pessary as well as a compress) is likewise useful in similar cases for a time, to prepare the patient for operative or other treatment. These agents, like drugs, should be discontinued when they have served their purposes and have for those reasons become unsuited to the cases in question.

The therapeutics of gynecology should be as the therapeutics which are employed in the treatment of other organs of the body

local and general, with a view to correct all the disorders of the system as far as may be, and as may be determined by the generally and specially well informed, wise, and skilful physician.

When it is obvious to the experienced observer that a pelvic organ or several of the female pelvic organs are hopelessly diseased, it becomes a question whether that organ or those organs shall be removed. According to the next proposition, sound organs are to be preserved and the normal portions of diseased organs are to be saved. We should not assume, because a patient imagines she may be better off without a certain part of her body, that she can dispense with it or that she has one less organ to think about, or that she will never know that she has lost anything worth saving.

When a hand is injured, or is diseased, we do not amputate the whole of it if we can possibly save a finger or the thumb or even a small part of one of those members. In this day and generation an eye, a tooth, a hair of the head receives every care and attention to preserve it. Physicians, dentists, scalp specialists, are agreed to employ every means and exhaust every effort to improve the condition and to prolong the existence of their special charges.

It seems absurd to state such an opinion, but the ease with which the female pelvic organs can be removed and the fashion of doing such operations these days (though perhaps much less foolishly fashionable than a few years ago) appear to have had a remarkable influence in promoting radical pelvic surgery. It has happened that a surgeon, having simply a trachelorrhaphy under immediate consideration, suddenly decided that the uterus was not healthful any way, and at once removed the organ, together with the tubes and ovaries, per vaginam. We are credibly informed that surgeons have removed the normal uterus and healthful ovaries without any apparent reason. In contrast with this it should be the invariable rule to remove diseased organs only. To this end fibroid growths in the uterus are enucleated instead of a complete excision of the uterus being done. And in hysterectomy for fibroids normal ovaries should be left intact. In this connection, furthermore, the psychic effect upon the patients by reason of oöphorectomy, should be borne in mind, and due regard should be given to this all-important and far-reaching consideration. If but one ovary is diseased, leave the sound one. If only a small part of an ovary is good, save it.

So simple a thing as puncturing numerous microcysts of an ovary, or the excision of one or two larger cysts may save a considerable portion of the organ or, at least, prolong its function indefinitely and, besides that, save the patient from a round of psychical phenomena and other distressing nervous disturbances most trying to endure. The reader has many times left both ovaries because they were normal, or nearly so, and he has found no reason to regret it. He has left one ovary because it was good, and he has repeatedly preserved half or a third or even a fourth of an ovary, and has not been "taken to task" for it, or had subsequently to remove the remnant because it became enlarged or in any way troublesome.

Let us mention a case: a large dermoid cyst of the left ovary, a fairly good right ovary, though enlarged to several times the usual proportions of a normal ovary, a normal uterus, but retroflexed. Dermoid cyst removed, right ovary remaining. Marriage. Three successive pregnancies within seven years—two females and one male at full term. Mother and three children living, in good health.

Many radical surgeons will not agree to a proposition so ultraconservative. For such, it is not sweepingly radical enough to be brilliant, and they insist that it is too tentative and not curative.

To the radicals, conservatism in any degree seems irksome. The conservatives appear to have adopted a waiting policy, are timid, slow, at a standstill. But after all, it is a question of fact, of judgment, and of ripe experience which should govern our action.

Radicalism without the guidance of conservatism, and conservatism without the energy, activity, and promptitude of radicalism cannot give us the best attainable results. In the sense that conservatism and radicalism alike seek to mitigate the suffering and to promote the health and to prolong the life of the patient, the fight is an equal one and both contestants are desirable and useful. Best of all is it, when these restraining and progressive forces join hands and pull together.

Conservative plastic surgery has become an art worthy of the best operators. The separation of old and pernicious adhesions and the formation of new, serviceable, and corrective ones will illustrate the meaning of our fifth proposition.

A Pryor operation for retrodisplacements of the uterus, a trachelorrhaphy to improve the structural condition of that

organ, a colporrhaphy to correct cystocele and rectocele, a perineorrhaphy to restore the support of the vaginal column, are among the operations which should be performed as early as possible after the existence of the malconditions has been discovered. Such operations are surgical restorations of the highest importance, which not only afford great relief and comfort to the patients, but also contribute largely to preserve the integrity of all the organs concerned. These operations call for large degrees of skill and ingenuity to perform them, but evolution in surgery, like evolution generally, has been and shall be equal to the demand for it.

The sixth and last proposition briefly refers to the order in which the several pathological states are, in the opinion of the reader, to be treated. In general, we should prefer to proceed from above downward, rather than in a reversed direction. If the approach were per vaginam alone, one would naturally follow the good rule of first using the curettage, with or without uterine irrigation, and then to open Douglas's pouch to remove as much as necessary of the adnexa. In the next place a lacerated cervix would be repaired, before narrowing the vagina, and that would be followed by a perineorrhaphy and at last an operation for hemorrhoids or fistula *in ano*. A diseased appendix might also be removed from below, but if an abdominal celiotomy were chosen in the place of a vaginal celiotomy, an appendectomy would be the first operation in order, and any other required supravaginal surgery would follow.

Aside from the rational, purely advantageous and convenient arrangement, there may be a still more important reason for selecting a particular organ for immediate removal, instead of leaving it for an immediate or later operation. I refer now to those cases in which the appendix vermiformis was the primary organ to become diseased, and was the original cause of the other factors in the case. An ulcerating appendix may cause general pelvic infection, pus tubes and other consequent and attendant pathological conditions. In such instances, the first and underlying cause should be attacked first of all. This having been done, improvement and even complete recovery may be the result without further operation.

DISCUSSION.

DR. WM. J. GILLETTE, Toledo.—I have been very much interested in the paper read, as doubtless all were. I think the leaving of ovaries that are in any way diseased is attended with considerable risk. It not infrequently happens that some portion of a diseased ovary will be found comparatively free from disease, and if this be left it may remain well and continue to functionate, giving no occasion for regret at having left it. This, however, is by no means always true. Occasionally the inflammation continues, though all the ovary that macroscopically appeared diseased was removed, and a second operation becomes necessary. Such a case recently came under my own observation, in which the second operation was done in the presence of a large amount of pus, and a general peritonitis. Death followed. This case illustrates well the fact that it is a grave matter to return to the abdomen an ovary that is the subject of an inflammation. Many of such cases do make a fairly good recovery, and I think the risk should often be taken, though always with misgivings.

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The essayist touched upon conservative surgery of the uterus. In the very recent past, the uterus has, without doubt, been altogether too frequently removed for fibroids, but the pendulum is now swinging the other way. Fibroid tumors of the uterus, weighing four or five pounds, I know by experience may be removed with safety, and the uterus conserved. I am sure myomectomy will be done in the future with greater frequency than in the past, for surgeons are beginning to appreciate more fully its possibilities.

DR. RUFUS B. HALL, Cincinnati.—I believe we ought to practise conservatism in pelvic and abdominal surgery, but first we should have a clear and unmistakable view of what conservative surgery is. I do not believe that it is conservative surgery to do a section on a woman and leave organs that are in doubt, that in all probability will necessitate a second operation within a year or two. I am just as anxious as the essayist or the previous speaker, to practise conservative surgery in these cases, but I am not anxious to have these patients come back for the purpose of a second operation that should have been prevented. We should formulate a working rule for our guidance and adhere closely to it, especially in intraabdominal surgery. I think it can be safely said that if a patient has been the subject of gonorrheal infection, and you leave a tube, you will have to remove that tube sooner or later, or you do not cure her. On the other hand, if a patient has not been the subject of gonorrheal infection, the chances are greatly in her favor that you will not have to do a second operation. If inflammation and adhesions have taken place following abortion or ectopic pregnancy, that nature has cured, or even tuberculosis, you can risk

more in such cases than you can if there has been gonorrheal infection. In my early work, in trying to do conservative surgery, I saved an ovary and a tube in many patients who had gonorrheal infection, and I had to reoperate on almost all of them, or someone else did. That is not conservatism. It is bad judgment, to say the least, whether it is good surgery or not.

I recall a patient upon whom I operated, removing a large tumor some ten years ago. The other ovary was as large as my closed fist. A piece of ovarian tissue not as large as the end of my finger was left. The woman wanted me to save that ovary so that she might menstruate. I took out one tumor and tapped this side, trimmed the ovary, and saved a piece of it. I did not think she would ever menstruate again, but four years afterward she had a living child, who is now a big boy. She had one child before. She menstruated until she was forty-two, and then menstruation ceased. That was conservative surgery. I did my duty and saved a piece of the ovary. I very seldom, in saving the piece of an ovary or half an ovary, have to go back and do an operation where the trouble was not due to infection.

Another case was that of a young girl, the only sister of a prominent young physician. This young doctor and the girl were the only members of the family living in Ohio. She was engaged to be married. She came to me a year ago last April with a history of uterine hemorrhage for a year or more. She had been curetted once, with the hope that this would relieve her. After examining her carefully I said there was a tumor in the pelvis, about the size of my closed hand, probably a dermoid. It was firm. I could get fluctuation, but there was no history of infection. I made a section and removed the tumor. On the other side was the other ovary, about the size of a small lemon, with a large cyst in it. About half of the ovary seemed healthy. I took away the tumor and resected the other ovary. She went home. She menstruated at the regular time, and for two or three periods menstruation was fairly normal. Since that time she has bled every day. Nothing in the line of treatment helped her. She came to me about ten days ago with a small tumor corresponding with the remaining ovary, about the size of a small lemon, with adhesions. I did not see any way of relieving her without removing this ovary. She was anemic. I made a section. It proved to be a small cyst, and I could detect very little ovarian tissue about it. I removed it because this was a case in which I thought it was justifiable to do so.

These women are willing to accept a second operation, if you tell them what they must expect. But we ought to have a working rule. When we really have to do a second operation, where there has been no infection, it is worth while to save a piece of an ovary or a tube, but in gonorrheal infection we should not experiment along that line.

DR. FRANCIS REDER, Saint Louis.—I have enjoyed Dr. Whitbeck's paper very much indeed, but it seems to me he did not

emphasize sufficiently one phase of the subject—the care of the perineum to prevent cervical lacerations in order to save women from surgery in the future upon their pelvic organs. The specialty of gynecology has been to quite a number of women rather unfortunate. We have in bordering towns to large cities the doctor who is building up a sanitarium, with perhaps from ten to twenty beds. He comes to the city for about six to eight weeks, sees operations performed skilfully upon the pelvic organs of women, and goes back to the country thinking that these procedures are easy of performance, at the same time forgetting the skill that they require or the ability that these men possess to perform these operations. Such country practitioners return home with a feeling that they also can practise this specialty and obtain similar results, such as they have seen in the hospitals of large cities.

Almost any physician can elicit pain in the pelvic organs of women upon examination. There is seldom a time when a patient comes to a physician and is examined by him but that she gives evidence of pain in her pelvic organs, and the result is that such women are sometimes subjected to abdominal section unnecessarily. In other instances women are frightened by such examinations and they go elsewhere.

In referring to conservatism as applied to the pelvic organs of women, I only wish to say that the tubes give us great concern. When we see a pathological condition of a Fallopian tube that instills into us a doubt whether or not the tube should be removed, we often hesitate and practise conservatism. It has been my experience that a tube once inflamed is always inflamed. Its removal is the only assurance of a cure. Gonorrheal infection of such a tube, if it can be demonstrated, would justify its immediate removal. It is a very good rule to lay down that an inflamed tube ought to be removed when a three-months' palliative treatment has been of no avail. In some of these cases, in which there is gonorrheal infection, it is advisable to remove both tubes, because if one is left the other will have to be removed sooner or later on account of a similar diseased condition.

In regard to the ovaries, on the other hand, I make it a practice to leave the smallest particle of an ovary when possible. Frequently it has appeared to me, after examination following removal, that I did not succeed in leaving any, but have found in the course of time that menstruation set in, which was a verification that some of the ovarian tissue had been left. The greatest conservatism we can practise on the pelvic organs is leaving a portion of an ovary.

DR. SAMUEL W. BANDLER, New York.—I was very much interested in Dr. Reder's remarks that have just been made, because I think they epitomize the question which was brought up in the paper read.

I remember that many years ago, before I operated on these cases myself, there was a swinging of the pendulum in favor of

the teachings of the French school (which was followed by the German school), and the uterus, tubes, and ovaries were removed, either abdominally or vaginally. Then came the cry, "the ovaries are such important organs, what right have we to remove *them* at the same time that we remove the inflamed uterus or tubes?" Then came the question of conservatism. Now we know the function of the ovary, and its value is greatly overestimated. If every case of gonorrhea could be recognized, and I may say parenthetically that not one-half or one-fourth of the cases are recognized, then I think the swinging of the pendulum would be in the direction of removing both tubes and ovaries in cases of gonorrheal infection, and perhaps in many cases the uterus as well. We do not always know when a gonorrheal infection exists. One tube may be affected and removed, while the other may show or give very little evidence of infection. We know that ovaries can cause pain and yet not be visibly inflamed. It has been my experience in a great many instances that a second operation is needed where we leave one tube or one ovary behind, and I can say candidly that in the private cases which I have operated upon conservatively and have removed, for inflammation, one tube and one ovary, or removed both tubes and left half of an ovary, I have yet to recall one in which I am not sorry I did not remove both tubes and both ovaries. That is a radical statement to make, especially in those cases in which there is no longer an acute inflammation, but I believe it, nevertheless. We are confronted with two conditions; If a patient wishes to bear a child or children or if she wishes to menstruate, and one tube and one ovary which are affected have to come out, we may take the chance of leaving the other tube and ovary. This being the case, we should distinctly say to the patient, "Are you willing to take such a chance because you wish to menstruate, because you wish to have another child?" Under these circumstances and with this statement clearly placed before her, if she refuses to have the radical operation done, then the onus is upon her. We are then privileged to do that conservative operation, and only on that basis would I do a conservative operation for inflammatory disease at the present time of my own volition.

I recall the history of a patient who was operated on a year ago for the removal of one tube and ovary. A second operation was done six months later for the removal of one-half of the other ovary. Very recently I did the third laparotomy and found a large cyst in the right ovary, and in the minute particle which contained ovarian structure on the other side was another cyst. The trouble is that we never know on removing one ovary for cystic degeneration whether the other ovary is to remain normal, or when it is going to cause trouble. Usually these ovarian conditions are bilateral. When, too, we remove a unilateral proliferating cyst or multilocular cyst, we must remember that they are apt to be bilateral also, even though

we see no evidences at the time of operation, just as papillomata are liable to be bilateral. I am firmly convinced, in spite of a desire to be conservative, that in operating for inflammations of the tubes, both tubes and both ovaries should be removed. I am becoming more and more pronounced in the opinion, even when the conditions are not inflammatory, that we are taking a great risk in removing one tube and one ovary, or in leaving half an ovary behind. I know that this is an extremely radical position to take, but my opinion is confirmed by six cases in my own service, and by cases in the service of other men, in several of which I have had to do a secondary operation for the purpose of removing the other tube and ovary (and the patients were not all operated for inflammatory conditions), so that I am firmly convinced that the pendulum which is swinging in the direction of conservative surgery is going to swing sooner or later in the other direction. When one sees private patients on whom he has done conservative surgery, returning to him to be reoperated, I think it is the best evidence we can have that with our present knowledge, no matter how healthy an ovary looks, we never know what change is going to take place in it afterward, if left behind. If one ovary is cystic, the other one will probably become so sooner or later.

Dr. Oscar H. Elbrecht, Saint Louis.—I regret very much that I did not hear the paper, but should like to answer some of the radical remarks of the last speaker with regard to removing both ovaries and tubes in all these cases. If an ovary is normal, without any cysts, or without infection of any portion of it, I allow it to remain, for I do not believe we are justified in taking out both of them, as by so doing we only help to swell that large percentage of neurasthenics, which we certainly get by taking out both ovaries. We should leave a portion of an ovary, if possible, for its mental effect if for no other reason. It is true that the ovaries are sometimes subsequently diseased by a small Graafian follicle being infected, and we may have to operate again, but it is rare enough to take that chance. I do not think the radical removal of both ovaries in any of these cases, as outlined by the speaker before me, is justifiable. We know very well that these patients are frequently fed on ovarian extract for years; and even then they come back and wish us to reoperate, and if we cannot find sufficient pathological condition to do so, we well know that they are the most troublesome patients we have to deal with.

Dr. Charles L. Bonifield, Cincinnati.—The paper and the remarks of Dr. Bandler show two extremes in pelvic surgery to-day, and I cannot agree with either one of them. I think the man who does not have occasion to open the abdomen a second time after doing conservative surgery does not have a good hold on his patients, and that they go to somebody else for a second operation. A certain number of patients reach a point where a second operation is required, but this is no reason why when

the abdomen is opened both ovaries should be removed. Not long ago I delivered the wife of a professional friend of mine in Cincinnati. They are now the fond parents of a beautiful boy, two months old. They had been married six or eight years and had no children. About three years ago I operated on this physician's wife at the Presbyterian Hospital, removing one of the tubes and one of the ovaries; also a part of the other ovary and a part of its tube. If I never have another case in all my experience, this one has given me enough stimulus to keep me trying conservative surgery when it is indicated.

We should be especially careful not to unnecessarily deprive educated people of good stock of the chance of pregnancy, for race suicide with this class of people is a menace to the nation at the present time.

It is true that the removal of both ovaries does in a great many cases produce bad nervous symptoms. Some of these patients go from clinic to clinic, craving for someone to operate on them. I believe whenever we can we should save a part of an ovary.

Dr. Hall has taken the position that the majority of cases are due to gonorrheal infection, and that sooner or later an operation will be required, but in my opinion the possibility that an operation may be needed in two or three years is not a valid reason for doing it now.

DR. RUFUS B. HALL, Cincinnati.—I would like to say a word or two in explanation of my previous discussion. From the remarks that have been made, I probably did not make myself understood; that is, in reference to the removal of ovaries and tubes in cases of gonorrheal infection. I did not mention my present status or mode of operating. I said, however, that my experience in all the cases in which I suspected gonorrheal infection and there was a healthy tube, these I had to reoperate upon, but from the remarks of one of the speakers he implied that I now remove both ovaries in all gonorrheal cases. I do not. If it is possible, even in a case of gonorrheal infection, or of double pus tubes, to save the ovaries, I do so. In many cases one ovary is likely to be in a worse condition than the other, and we may have to sacrifice one ovary, also sacrificing the tube on that side. On the opposite side, if you can save an ovary which is not infected, which has not an abscess in it, it is well to do so. You should cut away the tube down to the uterine end and cover it over where you cut it away with the peritoneum of the uterus, so that you will not have an abscess develop on that side. On the other side the tube should be removed at the uterine end in the same way. I have operated on dozens of such patients, and not one has returned for operation, because I have cut off the source of infection, and the patient does not get an abscess in that ovary.

DR. WHITBECK (closing the discussion).—I have been happily disappointed in regard to the interest which this paper has

excited, and I wish to thank the Fellows of the Association for their criticism, as well as for the manner in which they have discussed my paper.

I do not disagree with Dr. Hall in regard to the treatment of the tubes. If I knew that a patient had gonorrheal infection of one or both tubes, I should not hesitate to remove them. I do not disagree with what has been said with regard to leaving an ovary or a portion or an ovary. If we are no more afraid to operate a second time than the first; if we are just as willing to use our judgment and the fruits of our experience in a second operation as in the first, then I say let these patients come back. If it was true conservatism to operate the first time, if it was true conservatism to leave anything, then it is true conservatism, if necessary, to operate a second or third time, and finally the patient will get well. If this matter can be left to the judgment of the operator, and he knows all there is to be known about the case, it is safe whether he operates once, twice or three times. If the patient leaves the question to the decision of the operator, and he exercises his judgment, he may have to operate again, or he may not. Even though he removed the uterus and adnexa, he may have to operate again for some other condition.

The useful pendulum always swings and it always will swing. We cannot stop it. No matter how we reason or treat this question, a useful pendulum will never stop swinging, and if it swings toward the improvement of surgery and in the direction of saving humanity, why should we try to stop it from swinging? Let us keep it right. Let it swing. Throw over it the mantle of the best knowledge you can gather and the best experience you can exercise.

TRIVIAL PATHOLOGIC CONDITIONS OF THE UTERUS AND ADNEXA CONSIDERED AS CAUSES OF SEVERE GASTRIC DISTURBANCES.

BY

FRANCIS REDER, M.D.,

St. Louis.

FEW classes of disease exemplify the necessity of a wide and mature consideration more than those implicating the female sexual organs, no matter how vague the clinical picture may be nor how trivially the pathologic conditions may present themselves.

That a gynecologic affection of so wide a nature as to cause little or no local disturbance may excite in remote organs symptoms of alarming severity, has been a matter upon which opinions have been expressed in many diverse ways.

In presenting this subject, one of extraordinary interest to the gynecologist and neurologist, I was prompted by rather trying experiences that fell to my lot in an endeavor to relieve continued gastric distress in a number of patients that consulted me.

It is often a difficult matter to obtain a satisfactory history when a patient is of a very neurotic temperament and not seriously sick. This has been the case with nearly all of these patients whose disorders seemingly centered in the epigastric region.

During the last two years eight patients came under my observation, six of whom presented a train of symptoms that would ordinarily be grouped as those of hysteria or neurasthenia, moderately severe in character. The remaining two patients were free from any such pronounced neuropathic phenomena, and seemed in fairly good health with the exception, as they stated, that their stomachs were very weak.

I will not burden you with histories in detail. They would be too lengthy, and their significance would carry but little weight. Aside from the symptom finesse that we invariably

find in cases of neurasthenia and hysteria, the symptom of contention in these women was persistent nausea or vomiting, with almost constant pain in the epigastric region. Excepting some difference in the degree of irritability, depression, exhaustion, and emaciation, these patients presented a clinical picture of considerable sameness. Nausea or vomiting would appear without any apparent cause. At times the odor from cooked food (mostly meats or soups), would bring on a violent attack. Sometimes a walk to the point of gentle fatigue would start distressing symptoms. Similarly, reading or talking to a friend would at different times cause vomiting. Meal hours would affect the nausea or vomiting very little. The paroxysms seemed to be more frequent, however, after eating. Three of the patients had long intervals of rest and vomited very little for days. During this period of rest, however, painful eructations would take the place of vomiting.

The menstrual molimen aggravated the nausea and vomiting in all these patients, while three complained of much stomach distress after coitus. Two patients stated that they would suddenly awaken at night and begin to vomit.

From what I could discern there was never any stated periodicity as to when an attack of vomiting would be most apt to take place. It was never any effort on part of the patient to vomit. A feeling of exhaustion usually followed even a mild paroxysm. The vomitus consisted principally of mucus, often having an admixture of bile. If food or water had been taken shortly before, the whole would be usually found in the vomitus.

The ages of these eight patients ranged from 19 years to 42 years. Six were married, five of the six having given birth. No serious illness during last five years. General health was usually good. Food was always taken with a relish. The natural functions were normal excepting some slight menstrual irregularity. There was an obstinacy of the bowel in all, although at times the stools of some were diarrheal in nature. All these patients experienced aches and pains about the back at some time or other, to which they gave but little attention. In stature all were of medium height excepting a blonde woman, who was very tall. With the exception of this patient the remaining seven were either partial or pronounced brunettes.

The longest period of their present disorder dated back about four and a half years, the shortest period about twenty-six months. The intellectuality of these women was above the

average. Few had been without medical attendance for any length of time. Two had been operated on for gallstone disease, movable kidney and gastric ulcer, the cicatrices bearing evidence to this fact.

Christian Science claimed four patients for several months, at first with an appreciable improvement; eventually the condition, however, lapsed into its former state. The improvement while under therapeutic measures, including lavage, was at no time encouraging. All patients had been examined for a possible affection of their pelvic organs, although no distinct symptoms presaged a local disorder. In each case the examination was pronounced negative, as what was found was not regarded of sufficient import to be given any further attention.

A physical examination of these patients as they came under my care revealed no appreciable organic disorder. It was imimpossible to diagnosticate a diseased condition of the stomach or any of the organs in the abdomen above the umbilical line.

The pelvic organs, however, upon a thorough examination, gave evidence of disease, and although the examination did not reveal anything of a serious nature, yet the character of the affection appeared sufficiently severe when the condition of the patient, together with the negative results of all treatment, was taken into consideration, that these conditions seemed a possible contributory cause of the existing gastric disturbance.

In all patients the examination caused pain. The pathologic findings were as follows:

Case I.—Extensive bilateral cervix and perineal laceration. Uterus retroverted and flexed and bound down by adhesions.

Case II.—Not married. Marked hypertrophy of portio vaginalis of uterus. Uterus very hard and retroverted. Prolapse of right ovary. This patient fourteen months ago was operated on for movable kidney (right). No improvement in her condition. Four months later she was again subjected to an operation, this time for gallstone disease. No improvement followed.

Case III.—Examination very painful. Small cyst of left ovary can be readily palpated. Uterus retrodeviated, and adhesions.

Case IV.—Large unilateral laceration of cervix involving vaginal wall. Uterus retroverted, fixed. This patient was operated upon for supposed gastric ulcer eighteen months after having been taken with vomiting.

CASE V.—Examination very painful. Small mass can be recognized behind and to right of uterus. Organ retroverted.

CASE VI.—Extensive perineal tear, marked prolapse of vaginal wall. Uterus large and retroflexed. Movable.

CASE VII.—Uterus large, retroverted, movable, painful to touch. Both tubes thickened. Palpation causes pain.

CASE VIII.—Large bilateral cervical tear. Uterus retroverted and adhesions. Palpation of ovarian region painful.

Whatever the influence of these disorders upon the nervous system of a woman might be, their findings were sufficiently pathological to demand correction. We have here a series of pelvic affections that have caused little or no discomfort, at least not enough to call attention to those parts. It must be borne in mind, however, that time is a great eliminator, and that unquestionably in the earlier stages some pain must have been experienced. A woman's constitution is such that often owing to continued suffering she becomes so accustomed to her aches and pains that they actually become a part of her existence, and unless such pains grow more in their severity, much of the distress is forgotten.

In the enumeration of the above cited cases, we find in each patient a distinct gynecologic disease that had existed for years. Simply because these patients did not suffer from pain, these supposedly trivial conditions were left to be taken care of by the economy as well as such an organism can without help.

We are familiar with the delicacy of the nervous system a woman is endowed with, and we understand the potent influence the genital system exerts upon the feminine mind. I may state here that the external genitals of the female are supplied by both spinal and sympathetic nerves, while the internal genitals—uterus, ovaries, and tubes—are supplied by the sympathetic alone. There exists a very intimate connection between these two systems. We have the interrelations of the uterine nerves which supply the posterior wall of the uterus and belong to the sympathetic system (plexus hypogastricus interior, plexus spermaticus and plexus uterovaginalis), directly established through the solar ganglion or plexus celiacus. Uterine stimuli are transmitted through the solar plexus to the plexus gastricus anterior of the stomach. The plexus gastricus anterior is formed by the left vagus, and in its cervical portion gives origin to the ramus meningens. Irritation of this nerve causes vomiting. From the interlacing of these two nervous systems it is not

difficult to understand how a morbid state of one organ, although not in itself sufficiently diseased to create symptoms whereby attention would be called directly to such an organ, can produce disturbances of a severe nature in distant organs.

The clinical picture as presented by these patients was that of a reflex neurosis. In some the nervous phenomenon, as it manifested itself, was distinctly neurasthenic, in others it was hysterical.

If I do not err, the scientific characteristics of neurasthenia and hysteria are such that these affections are now regarded as well-defined diseases. I cannot refrain, however, from remarking that the more I meet with disturbances of such a nature, the more firm do I become in my belief that an organic trouble is responsible for them.

A question of paramount value with such affections is this: Has the gynecologic disease been primary, and subsequently caused the neurasthenia or hysteria to develop, or has the neurasthenia or hysteria been latent in the system and brought into evidence by a gynecologic disease? The solution of this question can probably be only accidental.

Reverting to the foregoing cases, we find that all rational treatment proved ineffective. The only avenue of treatment remaining was through a surgical procedure.

With the necessary operative steps to correct the existing pathological condition we hoped to either mitigate or cure the reflex neurosis. Operation was proposed and accepted by five out of the eight patients.

An abdominal section in each case was the operation of choice, because a thorough inspection of the pelvic organs and abdominal cavity was desired. Operative findings and procedure for correction:

CASE I.—Uterus retroverted and flexed; firmly bound down by adhesions. Omental adhesions to uterus, left tube and ovary. Both ovaries cystic. Uterus was freed. Ventral suspension. Both ovaries resected. Perineum and cervix had been previously repaired.

CASE II.—Not married. This patient was operated on for movable kidney fourteen months ago, and gallstone disease ten months ago. Uterus retroverted and adherent. Very hard. Right ovary cystic and prolapsed. Right tube inflamed and thickened. Uterus freed, suspended. Right ovary and tube removed. Elongated vaginal portion of uterus partially resected.

CASE III.—Uterus retroflexed, and bound down by firm

adhesions. Extensive omental adhesions to uterus and right tube. Cyst of left ovary, size of hen's egg. Uterus freed and suspended. Omentum resected. Left ovary removed.

CASE IV:—This patient underwent an operation for gastric ulcer eighteen months ago. Uterus retroflexed, firmly bound down with adhesions. Hydrosalpinx of both tubes. Intestinal (ileum) adhesions to left tube. Appendix adherent to right ovary. Uterus freed and suspended. Adherent ileum relieved. Appendix and both tubes removed. Cervix laceration had been previously repaired.

CASE V.—Uterus enlarged and retroverted. Fibroid almost the size of a walnut in posterior wall. Both tubes inflamed. Uterus and both tubes removed.

With the exception of Case II all the patients were relieved of nausea and vomiting from four to eight weeks after the operation. Case II showed much improvement when she left the hospital. There remained, however, considerable gastric disturbance. Eight months later her condition was very good, with only occasional attacks of vomiting (pessary).*

In all these patients the nervous manifestations (reflex-neuroses), began to gradually subside, and a return to health, or rather a normal state, was established within six months in all cases excepting Cases II and IV.

Unfortunately death by pneumonia (right) resulted in Case IV. This patient, after giving every evidence of great improvement in her condition, was chilled by a sudden storm coming up at night while she was still in the hospital. A pneumonia developed, and she died on the fifth day, three weeks after operation.

To approach a patient with the suggestion of an abdominal operation for the relief of a condition that gives but a vague evidence of its true character, without being able to offer anything positive to the patient, requires a great deal of moral fortitude. The gravity of such a procedure is felt very keenly, both by surgeon and patient.

In the cases thus cited it was a surgical procedure that anticipated pathological conditions. To wait for pathological conditions to give evidence of their existence by more pronounced local symptoms in gynecologic disease where there is a marked reflex neuros's, would be to invite secondary conditions that might prove of a very grave nature.

* In this case the necessity of a pessary became apparent on account of the failure to properly suspend the uterus.

DISCUSSION.

DR. RUFUS B. HALL, Cincinnati.—I wish to congratulate the essayist upon the clear and concise manner in which he has reported his cases, and the results he has obtained. I differ from him in one respect, however, and that is I think one of the patients whose case he reported had pathological conditions present sufficient to justify the operation, without any reference to the neurotic condition. The point I wish to make is that these patients were crippled by a pathological condition which was present and which was sufficiently marked to justify operation, even though the operation did not correct the nervous element in the cases. It was one of the straws off of the camel's back, so to speak, toward relieving the patient. To cure these nervous patients it is necessary many times to remove every obstacle in the way of perfect physical health. I am convinced that many of them, if let alone, as the essayist has said, would have become worse, with a more grave pathology resulting later, necessitating severe surgery, and prolonging recovery after operation.

DR. EMILE E. GUENTHER, Newark.—I may possibly be mistaken as to my understanding of some points that were mentioned in this paper. I understood the reader of the paper to say that in all of these cases a ventrosuspension had been done, and in one it was necessary to introduce a pessary afterward.

DR. REDER.—That is correct.

DR. GUENTHER.—I cannot understand how a uterus that has been bound down, released, brought into position, and suspended requires a pessary to hold it in place. That is what the operation is done for. Did the fixation give way, so that the uterus dropped?

DR. REDER.—Yes; that was the case.

DR. X. O. WERDER, Pittsburg.—I have very little to say in regard to this subject, except that I am very much interested in the cases that have been reported, and if I have any criticism to make it would be in regard to the title of this paper, which says, "Trivial Pathologic Conditions of the Uterus." In all of these cases the pathological lesions were not trivial, and when I looked at the title I was rather under the impression that we were going to hear of the resection of cystic ovaries, or something of that kind, in neurotic patients. I am very glad the essayist has taken the stand that he did. Personally, I am not very enthusiastic about operations on neurotic patients, as the results usually are not very good, and I am afraid the essayist will find in a few months that some of these patients will return to him with the same symptoms. Of course, operation was undoubtedly indicated in every case reported.

There is one other criticism that might be permissible, and

that is with regard to ventrosuspension. I believe the day of suspension has passed, and I think we should strive to find some other way of relieving displaced uteri.

DR. REDER (closing the discussion).—There has been some misunderstanding in reference to suspension of the uterus in one of these cases. The operation was performed with an untrained assistant. The patient took the anesthetic badly. There was a soft chronic metritic uterus. The sutures readily tore out. Several attempts were made to tie the sutures in this friable uterine tissue. We did the best we could under the circumstances. After operation the patient was very restless. The sutures undoubtedly tore out, allowing the uterus to fall back into its former position. A pessary was introduced and gave a very satisfactory service.

In speaking of trivial pathological conditions, I had reference to those manifestations which showed themselves when these patients came under my observation. There were no local symptoms, no disturbances or symptoms of so-called pelvic disease, and vaginal examination revealed that the conditions which were present could only be considered of a trivial nature. Later on, when an abdominal section was made, aggravated conditions manifested themselves, so that the title of my paper may not have given the proper information as to the outcome, but it was chosen from the conditions found when I first examined these patients, at which time there were no local conditions of any consequence.

As to having other means whereby to hold the uterus in position, we have none, to my knowledge. The only procedure we have at present, where we find a uterus bound down by adhesions, is to loosen the adhesions thoroughly and secure the uterus by ventrosuspension. It is better to suspend it, than to fix it, on account of a certain amount of mobility that suspension will give to the organ. The pessary is a valuable instrument; but it is only useful in those cases where we find a retroverted uterus that is mobile. The action of the pessary will allow the tissues to stretch themselves to a certain degree; it will do some good temporarily, but not for any considerable length of time. The tissues (adhesions) will, by their contractions, force the pessary out of place. The only pessary I use is a round ring pessary, which acts as a support to the adnexa and at the same time supports the uterus.

THE TREATMENT OF PROLAPSUS UTERI.

BY

HERMAN E. HAYD, M.D.,

Buffalo.

PROLAPSUS uteri shows itself in different degrees of severity, and has been arbitrarily divided into different classes, according to the degree of descensus. It is obvious, however, to all of us, that the condition—no matter what degree—is the result of the same pathological processes, and its treatment must be accomplished by the same measures; and these only differ in degree from simple plastic surgery of the vagina and perineum, with or without vaginal hysterectomy or hysterorrhaphy, to the most difficult, complex, and elaborate surgery for the cure of pelvic hernia.

It is usually slow in its development, and, as a rule, is the result of a previously ruptured and unrepaired perineum, together with such relaxation of the soft parts as would be consequent upon a breach in the pelvic floor, and increased by frequent childbearing, lifting of heavy weights, straining at stool, or any other form of intraabdominal pressure—particularly when the direction of this force is upon the upper and anterior surface of the uterus, as is the case with a retroposed uterus, so often the antecedent of prolapsus uteri. It is occasionally acute in its onset, and may be seen even in the nulliparous woman, when it is the result of some severe fall or violence which pushes the uterine body down into and through the introitus vaginæ. It would be accompanied by painful and perhaps very dangerous and distressing symptoms, due to the traumatism; but, just as soon as the acute trouble subsided, the subsequent history and treatment would be similar to the more gradually developed cases.

The various methods of treatment which are employed must depend upon the degree of prolapsus, the age and social condition of the patient, whether the woman has borne children, and perhaps has a large family and is the wage-earner of her family. Tentative measures, such as tampons, balls, and

pessaries, can accomplish but little with this distressing condition, and, therefore, surgical interference alone promises relief.

Minor degrees of prolapse can often be cured by bringing the retrodisplaced uterus forward by an Alexander operation, and then performing an anterior and posterior colporrhaphy and perineorrhaphy. These operations hold the uterus forward and upward and give the broad ligaments a chance to retract. The round ligaments have but little power to lift the uterus upward—they simply pull it forward, while the plastic operations narrow the vaginal canal and further support and elevate the uterus.

When the uterus presents at the introitus, or the cervix comes into the world, a vaginal hysterectomy with anterior and posterior colporrhaphy and perineorrhaphy is indicated, or a ventral fixation with the same plastic surgery of the vagina. In either case, if the cervix be elongated or torn, it is best to remove it by amputation, because we thus remove the wedge which dilates and pushes downward the soft parts. For the past three years I have been removing the uterus per vaginam as the operation of choice, because three cases failed in which I ventrofixated the organ after having done at the same time the plastic work in the vagina; and in all of these cases the body of the uterus remained firmly attached to the abdominal wall, while the cervix pointed into the world with cystocele and rectocele due to a giving away and stretching of the tissues at the neck —in other words, a supravaginal elongation of the cervix took place, which permitted the prolapsus of the cervix and soft parts below. In two of these patients I subsequently removed the organ per vaginam, and then took up the cystocele and rectocele and sewed the vault of the vagina to the stumps of the broad ligament with a perfect and lasting success.

The other case fell into the hands of Dr. Howard Kelly, who removed the uterus per vaginam and closed up the vagina intentionally so that future intercourse was impossible. The result, so far as the prolapsus is concerned, is most satisfactory, but I have now in contemplation the opening of the vagina so that she and her husband can enjoy their marital rights. I am satisfied any procedure which robs a woman of her connubial happiness is not often necessary, nor will she tolerate such surgery, and therefore it should be undertaken only after every other means had failed, because it brings with it so much do-

mestic unhappiness; not only is the husband compelled to lead a life of sexual abstinence, but the wife, by being the cause of this forced restraint, broods over her condition and becomes depressed, hypochondriacal, and even suicidal.

There are many other objections to fastening the uterus on to the abdominal wall. The patients often suffer from frequent hemorrhages, pain and tenderness in the scar and lower abdominal region, irritable bladder, etc., etc. Occasionally the bladder and rectum will prolapse after the uterus has been removed, but I am satisfied this is more often the result of poor plastic surgery on the anterior and posterior vaginal walls. The split edges of the obturator fascia with the levator ani muscle were not carefully fished out and brought together and retained in apposition by a special layer of chromic gut sutures, and unless this is carefully done failure is inevitable.

Operations for cystocele, whether associated with a prolapsed uterus or not, are not so uniformly successful in my hands as the operation of posterior colporrhaphy and perineorrhaphy when done for a rectocele, and I am sure it is because in many cases the anterior fascia is not torn in the median line, but laterally along the rami of the pubes and ischium, and therefore cannot be found through the ordinary diamond-shaped cystocele denudation or by the Stolz operation, and the fascia is, therefore, not picked up and brought together as it can be in the perineal operation with the finger in the rectum to differentiate the fascia and levator ani muscle. Fortunately, a slight giving away of the anterior wall is not so serious if the perineum and posterior vaginal wall be permanently fixed, because the cystocele cannot recur to any degree, as the fixed perineum will prevent its descent.

Sometimes the procidentia is extreme, so that the uterus and vagina fall down between the legs, even to the knees, and the contents of the sac consist not only of rectum and bladder, but also of coils of the small intestine. In one such extreme case upon which I operated successfully two years ago, I sewed the narrowed vagina and broad ligament stumps into one firm piece and then quickly did an abdominal section and sewed the stump with kangaroo tendon to the abdominal wall, and the soft parts, bladder and rectum have remained in splendid position ever since. A few weeks ago I received a very interesting paper from our distinguished member, Dr. Crile, of Cleveland, in which he described an elaborate operation for the cure of these extreme cases

Dr. Polk, in a recent article in the *Medical Record* upon the treatment of procidentia uteri, claims that hysterectomy is not often indicated because it is too radical for the minor cases and not sufficient for the more serious ones. I must say this has not been my experience, and after having operated upon a great many cases of procidentia uteri, only once have I been compelled to adopt measures such as he and Crile recommend, and I am satisfied that these extensive operations will only be occasionally called for if more care and attention is given to the plastic surgery of the vagina and perineum. Indeed, it is not possible to do these operations except where great relaxation and redundancy of tissue exists.

I wish now to describe my operation for rectocele, which consists of a free posterior colporrhaphy and perineorrhaphy and the taking up of the pelvic fascia and levator ani muscle, where they are torn, and the sewing up of the various structures from above downward in the direction that these tears take during parturition.

We have here a section of the posterior wall of the relaxed and torn vagina with the cervix on top. A curved, sharp-pointed scissors is pushed into the junction of the skin of the perineum and the mucous membrane of the vagina, in front of the anus. The mucous membrane of the vagina is then freely separated from the skin and other structures, as far as the carunculæ or those points—one on each side—to which the perineum will be closed. Then this piece of separated mucous membrane is picked up with a pair of artery forceps and divided across with a scissors. A double incision is now made with angular scissors up the posterior central portion of the vaginal wall even to the cervix uteri, depending upon the amount of relaxation and flaccidity of the vagina, and a piece of mucous membrane, triangular in shape, is removed, from a half to one inch in width, according to the size of the vagina (Fig. 1). The finger is then passed high up into the rectum and pressure is made forward, and wherever there is a break in the pelvic floor the hard edges of the obturator fascia and levator ani muscle will be felt, when they are carefully brought together and sewed with fine chromicized gut. This sewing process is commenced high up in the vagina and is continued downward until the whole fascia and levator ani muscles are perfectly approximated. The bulging rectum is turned in on itself and its lumen is lessened by taking the excess up with a few stitches of catgut. Then

the vaginal mucous membrane is brought together by interrupted sutures to the introitus and the perineal edges of the wound with silkworm gut; the most anterior suture also takes in, not only the skin, but the lowest part of the opposed vaginal sides, which we may call the crown stitch. It will now be seen that we have lengthened the vagina and changed its horizontal

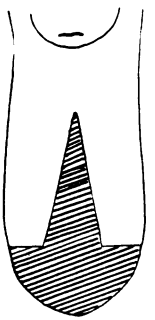

Fig. 1.—Diagram of Posterior Vaginal Wall Showing Denuded Area.

course to an oblique one, and have made a strong, full perineal body, which any effort at coughing or straining will not displace. Moreover, in some cases where the perineum is very much relaxed and stretched out, not so much from the tearing

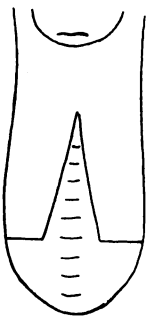

Fig. 2.—Buried Sutures for Levator Ani and Obturator Fascia.

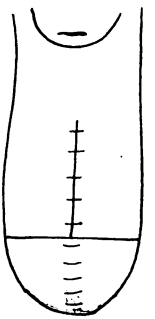

Fig. 3.—Upper Part of Wound Brought into Position and Sutured.

of the fascia and levator ani muscle as from simply the stretching of them. Here through this high and ample denudation which is provided in my operation, the loose fascia and muscle can be picked up and lapped on itself, and in this way the relaxed structures may be permanently fixed by the buried chromic gut sutures.

Previous to this operation I did the Emmet and was taught the operation by Dr. Mann, whom I assume does the classical operation as well as anybody else, since he was one of Emmet's pupils and house surgeons. I had so many failures with the operation as I did it, that I began doing this one, which I have gradually elaborated, and which has proved very successful in

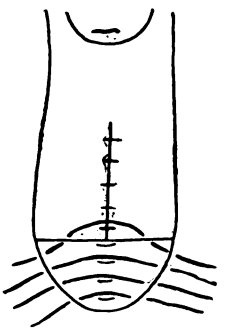

Fig. 4.—Skin Sutures to Close Lower part of Wound and Perineum.

my hands, and with it I have cured other cases on which I failed by a previous Emmet or bat-wing denudation.

Its advantages are:

1. It brings up the fascia and levator ani muscle into perfect view, and their closure can be satisfactorily accomplished.

2. It removes the central and stretched-out portion of the vagina, and exposes by reason of the denudation the dilated

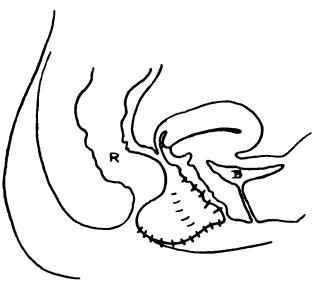

Fig. 5.—Section Showing Completed Operation and Sutures.

and distended rectum, into which a few stitches of catgut can be placed, and thus tuck up or lap up the excess of rectal pouch.

3. It lengthens the vagina by converting a horizontal into an oblique canal.

4. It provides a thick permanent perineal body instead of a skin perineum, which so often results from other operations.

DISCUSSION.

DR. CHARLES L. BONIFIELD, Cincinnati.—This is a very interesting subject, and the condition described I am sure has given all of us more or less trouble. I have never seen a case where I thought vaginal hysterectomy was indicated for prolapse of the uterus. I may some time change my opinion, but I have never had a case under my care that I could not relieve by other methods. One case of complete prolapse of the uterus in an unmarried woman, my first operation failed to give entire relief. I am confident a second operation would have effected a cure had she permitted it.

I believe with Dr. Werder that ventrofixation or ventrosuspension of the uterus is an operation that should seldom be done; but I think in these bad cases of prolapse this operation is a perfectly justifiable surgical procedure. The operation should not be done in a woman who may become pregnant, because too many authentic cases have been reported where it made serious trouble at the time of delivery. A woman who has been so severely injured during confinement that her pelvic organs later protrude from her body, should be satisfied with a cure that does not warrant her in again assuming the risks of parturition. Because suspension of the uterus is a valuable aid in the treatment of prolapse it must not be considered a satisfactory treatment by itself. It will not do to ask the suspended uterus to hold up with the bladder, rectum, and vagina. Support from above can never take the place of support from below. It is of the utmost importance that the vaginal repair be done accurately and properly. Except the one case of prolapse in the young unmarried woman to which I referred, I have never had the uterine attachments so stretched that the cervix could protrude from the vulva after ventrosuspension. I believe the principal reason for this is that I have taken extreme care in restoring the vagina at the same time the suspension was made.

In regard to the operation for cystocele I believe the one recommended by Dr. I. S. Stone of Washington, in a paper read before the Cincinnati Academy of Medicine some years ago, was the best one. In this operation the bladder is loosened from its attachment to the vagina and uterus and raised to a higher level on the uterus, where it is fastened with one or two sutures; the excessive vaginal wall is then removed and the incision closed. It is the operation I have, in recent years, almost invariably employed. What I particularly wanted to speak about was the perineorrhaphy.

Dr. Hayd suggested extending the denudation in a triangular shape up the posterior wall of the vagina, the apex of the triangle near the cervix. My objection to this denudation is that it covers a portion of the vaginal wall that I have never

seen torn. The tear in the perineum is frequently in the median raphe, but in the vagina it will always be found in one or the other of the lateral sulci. The other criticism I would make is introducing the finger into the rectum during the operation. Personally, I am afraid to do that when I bury a lot of catgut.

DR. HAYD.—With my finger in the rectum, I take a curved needle and bring together the perineal fascia and levator ani. My assistant ties the knots, so that I never touch the surface myself.

DR. BONIFIELD.—Your explanation robs my criticism of its force. I think Dr. Hayd's method of closure is excellent, but I believe the Emmet operation is better, because it uncovers the vagina at just the point he wants to sew it.

(Here Dr. Bonifield demonstrated on the blackboard his method of doing a perineorrhaphy.)

DR. RUFUS B. HALL, Cincinnati.—I have been much interested in this paper and in the discussion, and desire to bring up for further discussion two or three phases of it. First, I believe we all agree on the general principle, but not, perhaps, in detail, as to these operations and the method of doing them. It is the final permanent results from these operations that we seek. In a large number of cases I believe the operation of Emmet, as suggested by Dr. Bonifield, is perhaps as satisfactory and more desirable than some of the other operations. Take a case with complete procidentia uteri, like those reported by the essayist; we have a different condition, and if Dr. Bonifield will permit me to work over his drawings I will say that we have in all these cases a big buttonhole in the fascia of the pelvic floor (illustrating on blackboard) not unlike a big buttonhole in one's overcoat when he has worn it too long, only very much larger. That condition is not so favorable for the Emmet operation on the two sides. Why? Because if you put your fingers in the rectum you can bring two or three fingers out through the vagina; you hold the edges of the muscle and fascia back, and you have nothing between the two except the thin vaginal wall and the mucosa of the rectum. The operation which the essayist proposes is designed to correct that condition. He does the operation I have been doing somewhat differently, but with exactly the same technic. I make my incision a little differently. (Demonstrating method of making his incision.)

You cannot cure one of these cases of complete procidentia uteri without doing a vaginal suspension or a round ligament operation of some kind, and you want to have the patient remain well without removing the uterus. If the patient comes to you after the menopause, when she has no further use for the uterus, what is the use of doing a vaginal suspension, which is unnecessary, when you can get rid of the uterus and make her well. There is one point in reference to the uterus in these

cases that I have learned to carry out, as I think it adds to the safety of the operation, and there is less danger of recurrence. In all of them we have a prolongation of the round ligaments, and with that we must necessarily have more or less descensus of the uterus. When you take the uterus out, you can cut the round ligaments off to bring them together in the pelvis. You fasten them together firm and tight and you have a pelvic floor above that will stay there. You can do vaginal hysterectomy, and with catgut sutures close up the vagina above, tie away the cervix, so you can do an operation like Dr. Hayd has described, and cure your patients. They will remain cured when this is done.

With regard to introducing fingers into the rectum, I have done that in these operations for the last ten years, and I never take my fingers out of the patient's rectum afterward, until the stitches are all placed. I want to keep them there until the last stitch is placed, then I clean my hands before I finish the rest of the technic of the operation. I have never had occasion to regret doing this. If the operation is done in the manner I have described, the patient will remain well.

DR. F. F. SIMPSON, Pittsburg.—I am pleased to see the manner in which Dr. Hayd is repairing the perineum in these cases. For a good many years I did the Emmet operation, saw it done, and was never satisfied with it, but for a number of years past I have been doing practically what Dr. Hayd is doing, and my results have been uniformly satisfactory.

DR. FRANCIS REDER, of Saint Louis.—There were two things in Dr. Hayd's paper that specially attracted my attention during the reading of it. One was that he puts his fingers into the rectum, in fixing up the perineum, and the other is that he builds a perineal body.

DR. HAYD.—There is no perineal body to build.

DR. REDER.—Without a perineum we do not have proper support of the pelvic organs. I commend the procedure which he has demonstrated, and my remarks have reference more particularly to ventrofixation than to suspension in these cases. I prefer to anchor the uterus up against the abdominal wall, and in that way I am enabled to give my patients some relief. Before I take my seat I desire to say a few words in regard to the operation of perineorrhaphy.

A great deal has been said about perineorrhaphy, and several methods have been described and demonstrated on the blackboard. I have tried them all, and when Dr. Hayd started out I thought he would map out the lines I am following in this operation. I think simplicity in all of these operations helps the surgeon along very materially. Following out the lines of Dr. Hayd, by deepening the sulci on each side, we find it causes additional traumatism. I carry the apex as near to the cervix as possible, so that I can work with some degree of satisfaction. I carry the line straight down to the angle, se-

lecting the attachment to the inferior nympha as my point. I then dissect carefully and try to avoid the vascular area as much as I can. After I have dissected and loosened up the mucosa I take scissors and trim the parts symmetrically, making a simple triangle.

The suture material I have always used has been braided silk. I have not used catgut. I have not cared to use any silkworm gut. In introducing the sutures I use a needle which conforms to the area of denudation. I use a large curved needle, going through all tissues, with my finger in the rectum, so that I am able to palpate the posterior wall of the vagina. In this way I place the silk sutures with convexity downward. I do this until I get to the angle of the nympha; then my sutures, which come out externally, are placed in this way (indicating). I do not allow my assistants to tie the sutures, but I tie them myself. I boil my sutures in glycerine. This gives to the silk some lubrication, so that in tying, the sense of touch will tell whether or not the knot is properly tied.

Catgut has proven an unreliable suture material in my hands when placed between moist surfaces. The knot is very apt to untie itself, no matter how securely it is tied.

DR. OSCAR H. ELBRECHT, Saint Louis.—Although I was not present at the reading of Dr. Hayd's paper, yet I have heard the discussion, and in this connection wish to report an interesting case germane to the subject. A woman about 25 years of age came to the hospital about a year after her first confinement with her uterus completely prolapsed and full of ulcers of a streptococcus nature. I first healed the ulcers by replacing the uterus, tamponing with glycerine and ichthyol, and then proceeded to repair the perineum and to amputate the cervix, also doing an anterior and posterior colporrhaphy, to produce a high vaginal stenosis, so that the cervix could not act as a wedge by the weight of the uterus and force its way out again. As a secondary operation I did ventrofixation with plain catgut,using two sutures, and in opening the abdomen found that this patient had a complete congenital absence of the round ligament, tube, and ovary on one side, which accounted for the complete procidentia in so young a woman. The patient left two weeks after operation, and within a year became pregnant. She was confined at the hospital and had a perfectly normal delivery, without any laceration of the vagina or perineum. It is now eight months since her confinement, and she comes back to the hospital every two or three months to be examined, for I want to follow her case, and she also thinks the uterus will come down again; but so far there has not been a recurrence.

DR. HOWARD W. LONGYEAR, Detroit.—I did not intend to discuss this paper, but inasmuch as Dr. Hayd has asked me to do so I take great pleasure in saying a few words on the subject.

I do not think we are very far apart in our methods in doing this perineal operation. Dr. Hayd does something that is really unnecessary, in my opinion, in the removal of the posterior wall of the vagina. In doing this, he removes those rougæ which are useful in giving support to the vaginal wall. The operation which I do is almost like this, with the exception that I do not remove anything. I start in with the Tait incision, it is true, but do not do the Tait operation, as its author did it. (Demonstrates his method on blackboard.)

Let us suppose that here (indicating) is the vulvar opening, and we have only a secondary rupture such as Dr. Hayd has been portraying. In the Tait incision the perineum is cut, first horizontally, then on each side, the latter incisions extending as high as the beginning of the carunculæ at this point. The object of the split flap is to get in deeper than the denudation can possibly go, that is all. You get in here (indicating) through the retracted ends of the muscle and fascia, which have been torn. They do not lie next to the mucous membrane, and thus cannot be uncovered by a simple denudation. They begin, immediately after rupture, to go toward their points of origin, and they are constantly retracting. Look at the dimples. In complete rupture you will find a dimple on each side of the anus, which is caused by the contraction of the sphincter in its efforts to retract toward the coccyx. It shows that it is constantly pulling away from the mucus membrane and into the deeper tissues. If you operate here by superficial denudation, you will not cut the ends of the sphincter ani, and failure will result. That is a simple illustration. You must cut into the ends and pull them together to get proper union. After I have made the three cuts I put in a tenaculum, draw the vaginal flap upward, and dissect the vaginal wall away from the rectal wall. You will find in beginning the dissection upwards there will be some cicatricial tissue, and if that is the only part Dr. Hayd cuts away, it is well enough; but I do not generally do that, as I do not find trouble by leaving it; but it may be cut away if one thinks it best to do so. When he goes above that and takes out this healthy vaginal wall (indicating), it is unnecessary, as it is only distended because the support behind it—the muscle and fasciæ—is gone. The levator ani is torn, the fascia is torn, and the rectal wall is pushed through here, causing distention of the vaginal wall. You should remove the pressure, and this can be done by bringing together between the vagina and rectum, the deeper layers of tissue that you have uncovered by the deeper incision. Bring it together in the manner I show you, and the vaginal wall is far away from the rectal wall. You have no more bulging, and the excess of vaginal wall will gradually disappear. You make this union by the buried stitch. There is only one way of properly repairing these perineal structures, in my opinion, and that is by using buried sutures. I have used both

chromicized kangaroo tendon and catgut, but the former is preferable.

There is one other point that I will touch upon and say just a word regarding the mechanics to be considered in the rectification of the procidentia. You have the perineum coming down at this point (indicating). You know that in a rupture of the perineum the axis of the outlet is downward and backward and not forward. As you know, and as Dr. Hayd has said the first stage of procidentia is retroversion. It must be so in the ordinary cases we see. The exceptions are those congenital cases where there is relaxation of everything, but in the ordinary cases we see the uterus must be first retroverted, and afterwards prolapsed, because the axis of the uterus must be in accordance with the axis of the vagina, so that the fundus must go backward and the cervix forward, to get out. You repair the perineum by any operation you think is necessary, but beside that, everything that is indicated should be done, not only plastic repair, but replacement as well, because if you leave the case without the latter, the patient will come back again, and just as sure as the woman lives long enough she will return if you do not do that one other thing, and that is, put the uterus where the axis will cross the vagina. I do that by simply shortening the round ligaments. I do not shorten these ligaments intraabdominally, because if I did I would get the ligament pulling on the attenuated portion. I go into the inguinal canal by the blunt-hook method and pull out the ligament, strip it free from its adhesions in the canal, and pull it out until it holds the uterus forward.

In these cases of procidentia uteri I find enormous ligaments that are apparently hypertrophied by the great tension on them. I weave the looped ligaments into the aponeurosis and sew them in, each by one stitch. The uterus is thus held in anteversion, its axis crossing that of the vagina, and cannot come out until the anteversion has been destroyed in some way. The result is that these cases of procidentia uteri are cured. As I remarked before, there are exceptional cases in which there is a congenital looseness of the aponeurotic tissues of the body, and these will not be cured by anything of a restorative nature that you do. The operation I have described, however, will cure the ordinary cases and leave all the organs intact.

Dr. Hayd (closing the discussion).—The importance of this subject is evident from the liberal discussion you have given my paper, for which I am much obliged. Dr. Longyear and other speakers have said that we are not very far apart in doing these operations. We all seem to be in accord that the classical Emmet operation has not always given us satisfactory results, and the only man here to-day who tried to compliment the Emmet operation was Dr. Bonifield, and he condemned the operation more than any of us, because instead of doing the Emmet operation he goes up to the top of the crest and takes

out nearly the whole posterior wall of the vagina. As I understand the Emmet operation, he left this central part of the posterior vagina (referring to diagram).

In Dr. Longyear's flap-splitting operation he separates the vagina from the skin and runs up until he comes to the cervix, if necessary, and thus separates the whole posterior wall of the vagina. After doing this modified Tait operation, the tissues are then all brought together, and there is left a tongue, from excess of vaginal tissue, which sticks out of the vaginal orifice, like my finger. When we were talking about this last night, Dr. Longyear said that this part retracts in time. I have tried it often and it does not retract. He agrees to taking off this lower piece (diagram), because it is cicatricial tissue, but he leaves the central part which I remove because it is the most distended and therefore the most distensile part, and which, if left, leaves a pocket for the rectum to fall into it—a thing that helps immediately to bring back the rectocele.

Dr. Bonifield's operation is practically what I have described —namely, an operation which will enable us to expose thoroughly the levator ani muscle and obturator fascia, and unless we expose them thoroughly and unite them perfectly, we will not get a successful result. By extending the incision as I do, high up above the crest, we are able to bring together the sulci. where the tear so frequently exists, but in many cases it does not exist on the side, but in the center.

DR. BONIFIELD.—It starts there.

DR. HAYD.—It does not matter where it starts. In many cases there is no tear, the tissues are simply stretched from frequent child-bearing. In these cases, with the finger in the rectum, we can differentiate these tears. If the finger in the rectum cannot be brought forward, then the fascia and muscle are not torn; they are simply distended and stretched.

I had hoped to make it plain by the diagrams on the blackboard, and I thought I did, that by making a high central denudation we can lap over the excess of dilated and pouched rectum with a few fine sutures, and then afterwards bring together the fascia and muscle by another layer of sutures, and thus we diminish in size not only the rectum, but the whole vaginal canal, and even lengthen the vagina instead of shortening it, as most other operations do.

I was pleased to have the opportunity to correct an impression which Dr. Bonifield had, that I tied the sutures, and in this way I also meet the criticism in regard to the remarks of Dr. Reder. I do not believe it is possible for a man to tie these sutures satisfactorily himself, because he has got one finger away up in the rectum. If he leaves it there, and uses it as a guide to pass his needles and sutures, and his assistant ties them, then there is no danger whatever of any infection, and he can pick up and approximate every portion of separated fascia and muscle. After you have completed the vaginal

portion of the operation, you can wash your hands, and put on a finger cot. I have had no case of infection after this operation.

As to the question of ligatures and suture materials, there is very little left for us to talk about, as we have threshed that subject out so often at previous meetings. Most men in this Association do not use silk, but catgut and absorbable materials, in their work. Of course, some men still use silk, notwithstanding all the proofs we have brought them, but I am satisfied we can sterilize catgut to a certainty, and consequently I shall continue to use animal ligatures and bury them, and will never have any anxiety in connection with their use.

So far as the fixation operation goes, which was mentioned by Dr. Reder, I will say that in the cases which I reported three of them failed, and they were ventrofixations, not ventrosuspensions. I scarified the anterior wall of the uterus, and sewed it firmly to the abdominal wall; but in these three instances the cervix, vagina, and rectum gave way from the fixed uterus, and they came down again and presented into the world. Two of these I afterwards cured by vaginal hysterectomy, and I lessened the size of the vagina by doing an anterior and posterior colporrhaphy. The other patient went to Dr. Kelley, who closed the vagina, so that it was not possible for the wife to have sexual relations with her husband, and I have in contemplation the opening of her vagina again. Dr. Price mentioned to me the case of a woman who was on the verge of committing suicide because of unhappy relations which existed in her family on account of a closed vagina. It is not necessary to close the vagina to cure these cases.

So far as Dr. Hall's discussion is concerned, he simply accentuated everything I said in my paper, agreeing thoroughly with me. I do not know of anything else that I can say, except to thank you for your free discussion of the paper.

LIVER SURGERY.

BY

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THAT surgery of the liver has not progressed so rapidly and satisfactorily as surgery of the other abdominal organs is due to the fact that certain obstacles had first to be overcome and certain problems solved. These problems may be classed under four headings, namely:

1. The control of hemorrhage.
2. The power of the liver to regenerate itself.
3. Infection.
4. Cholemia.

The control of hemorrhage has always been considered a difficult matter, and various means for its accomplishment have been advanced from time to time. One of the earliest, and under many conditions the only method that can be employed is tamponade. Grekow[1] advocated it whenever the liver could not be brought into plain sight, or when the wound was very deep, and he also advised that the tampon should be removed a little at a time in order to avoid secondary hemorrhage and the risk of infection. Tricomi[2] says gunshot or other deep wounds require tamponade. Garwardine[3] reports a case in which the liver was lacerated across the entire under surface from the position of the gall-bladder to the posterior part, with a crush of the rest of the right lobe. Three and three-quarter yards of iodoform gauze packing was used, and in addition a large amount was packed under the left lobe, with recovery. Wilms[4] cites a case in which the entire left lobe was crushed off where he used immense numbers of pieces of gauze between the liver, diaphragm, stomach, and spleen, so that with partial closure of the wound the entire mass of tampon was pressed against the spinal column. Healing was uncomplicated. The friability of the liver has prevented the use of suture and ligature until recent times. Kussnezoff and Pensky[5] advocated the ligation *en masse* by

the passage of deep intrahepatic ligatures, employing a double thread with blunt needles, and passing the ligatures in and out of the liver substance, cutting alternately above and below and tying. They showed that the individual vessels of the liver can be successfully ligated, and that the isolated hepatic veins are stronger than the arteries. In addition, foreign bodies have been employed from time to time, such as fish bone, whale bone and ebony, which were left to become encapsulated.

Recently Payr and Martin[6] made a number of experiments with magnesium plates. They claim for them several advantages over other foreign bodies. They completely control hemorrhage, there is no risk of peritonitis, and what they lay particular stress upon is that adhesions are quickly formed while the magnesium plates, through the action of the hydrogen and oxygen of the tissues, rapidly disintegrate so that at the end of from three to four weeks all there is to be seen at the line of suture is a white elevated scar. To prevent adhesions to the neighboring organs the line of suture is covered with omentum.

Carl Beck[7] in the place of a foreign body employs bands of tissue from the abdominal wall to support his sutures. J. Frank[8] has recently described a method of suture which he claims controls hemorrhage easily and at the same time reestablishes the continuity of the liver substance, leaving no raw edges. He incises the liver in such a manner as to remove a wedge-shaped piece, and leaves the organ with two flaps forming a trough. All vessels are secured either by single ligature, or by ligature *en masse*, and any slight oozing is controlled by pressure or superficial suture. The flaps are then coaptated, and with a long noncutting needle, threaded with medium catgut, he sews through the liver with a running suture, sewing first through the bottom of the trough and then superficially until the wound is closed. He no doubt secures by this means very excellent hemostasis, which is to be accounted for as Dr. Crile has explained, by the fact that the portal blood pressure is quite low, and inasmuch as the hemorrhage is mostly venous, the good coaptation secured by this method making the slight but evenly distributed pressure quite sufficient.

As for the suture material, catgut, threaded on a rounded noncutting needle is perhaps most generally employed. Besides tamponading and suturing, either separately or together, various other means of controlling hemorrhage have been used, such as the elastic ligature for the temporary stoppage

of bleeding, or for the purpose of constricting a growth until strangulation occurs. Keen[9] used this method in one of his cases with success. Israel[10] and others have employed it. The Paquelin cautery which was advised by Lucke and Tillman[11] has many advocates at the present time, but is mainly employed in conjunction with other methods. Tricomi[12] used adrenalin chloride on animals, and says that one application will sometimes control bleeding, and that subsequent dilatation of vessels and hemorrhage is not to be feared.

Freeman[13] says parenchymatous injection of adrenalin chloride is good only for small vessels. From this and other observations it would seem that adrenalin chloride is not greatly to be depended upon for control of hepatic hemorrhage of any magnitude.

The foregoing seem to be about all the methods as yet employed to combat hemorrhage of the liver, and the best, at least theoretically, unless large blood-vessels be incised, would seem to be that described by Dr. Frank in an August number of the *Journal of the American Med. Association.* In addition to these noted I wish to call your attention to a means of controlling liver hemorrhage in certain cases of severe bleeding when the bloodvessels cannot be easily reached. It sometimes happens that to tie them requires a further enlargement of the lacerated liver substance—this of itself increasing the gravity of the patient's condition.

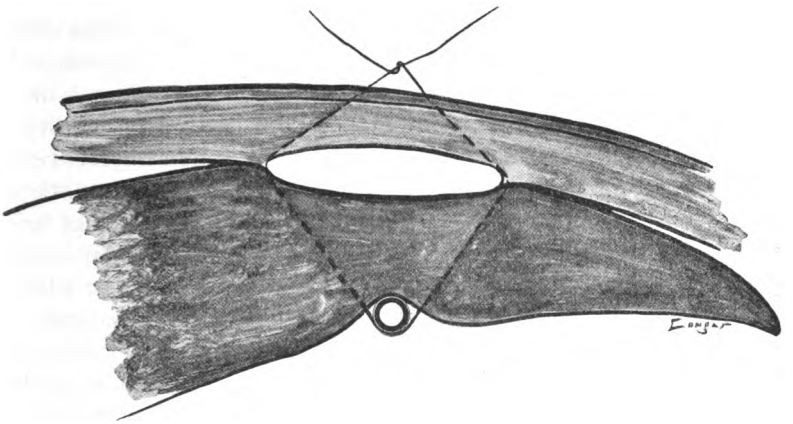
Three years ago my friend, Dr. Hartman, of Wauseon, Ohio, called me in haste to see a young girl of fourteen years who had been shot by a target gun, the bullet entering between the eighth and ninth ribs near the costal cartilages and passing through the right lobe of the liver, lodging behind the stomach. The low velocity of the bullet had caused it to make a tear rather than a perforation. When first seen the child was nearly pulseless and had all the evidence of a severe internal hemorrhage; her face and lips were white and bloodless. The abdomen, with the assistance of Drs. H. L. Green, Hartman and Wilkins, was opened at once.

An incision was made close and parallel to the costal cartilages on the right side. The abdomen was found full of blood, which could be seen freely oozing from the torn liver. I attempted to control this, first with catgut ligatures, but the friability of the tissues prevented. Some time previously I had an experience with a similar wound of the liver made by a bullet, and had attempted to control the hemorrhage by packing with gauze; but the patient, a strong, robust man, had promptly died from

the continued loss of blood. Post mortem revealed that the gauze packing had been entirely inadequate to control it. Having this case in mind, I did not feel like trusting again to gauze, and inasmuch as it was not controlled by direct ligation, it occurred to me that by passing sutures from within, entirely through the liver substance and through the abdominal wall, making exit between the ribs after the manner of a staple, and tying them firmly on the cutaneous surface, that permanent and constant pressure could be made, sufficient to control the hemorrhage without the ligature cutting into the friable liver tissue. Five or six such sutures were now introduced on the proximal side of the wound, each one embracing about three-quarters of an inch of the liver substance. Care was taken to link them together so as to include all the bleeding tissues in their bite. The ligatures emerged between the ribs the same distance apart as they were entered on the liver surface, and when firmly tied all the hemorrhage and oozing ceased at once. Other injuries to the viscera, which were slight, were repaired, a drainage tube inserted, and the abdomen closed. The patient made an uninterrupted recovery, though this was hardly deemed possible by the physicians present. I have since used this suture in two instances, in one of which, in removing a very adherent gall-bladder, I met with a severe hemorrhage which was readily controlled with it. Recovery was prompt.

The third case was one in which a hydatid cyst, the size of a small cocoanut, was removed, together with a large number of gall-stones from a suppurating gall-bladder. This patient unfortunately died from peritonitis, a few days later, but the hemostasis was perfect. The stitches, however, were found at post mortem, to have slightly cut into the liver substance, but not sufficiently to interfere with their efficiency. Recently I have had some experiments made upon dogs with the idea of overcoming this defect of ligature cutting, and find that by the use of a flexible rod, such as a rubber tube drawn over a linen catheter No. 10, placed against the liver along the proposed line of suture, and passing the sutures over it this trouble is largely overcome. Sufficient pressure is thus obtained to control hemorrhage from almost any portion of the liver without cutting into its substance. One end of the rod is left in the abdominal incision that it may be withdrawn when its presence is no longer necessary. This method of controlling hemorrhage seems to me to be well adapted to that class of cases where the large bloodvessels are involved,

and when the nature of the liver injury is such that it is only with difficulty the bleeding vessels can be reached. I would not hesitate to pass the ligatures through the thoracic cavity if occasion demanded. Packing with gauze is no doubt useful in slight hemorrhages, but in my experience, when of any magnitude it cannot be relied upon. I am convinced that any method yet advocated will occasionally fail us; and for this reason I have presented this procedure to you for your consideration. On inquiry, the probable permanent fixation of the liver to the abdominal wall in the cases mentioned has been attended with no discomfort.



Suture for Controlling Hemorrhage from Laceration of Liver.

That the liver has marked powers of regeneration has been proven experimentally and clinically. Ponfick[14] and Meister[15] showed on lower animals, that three-quarters of the liver could be removed and the tissue restored by compensatory hypertrophy and hyperplasia. According to Keen[16] and Wilms,[17] the left lobe has been entirely removed with no bad results following.

The dangers of infection following operations have become less and less as our technique has improved. Where pus exists, drainage by means of gauze and various kinds of tubes provide effectually against peritoneal contamination. Furthermore, bile is aseptic, and even should it gain entrance to the abdominal cavity will not produce unfavorable complications. This was shown very clearly by some experiments of Ehrhardt.[18] In twelve animals he divided the common duct near the duodenum

and allowed the bile to flow freely from the hepatic end, having sutured the duodenal end to avoid infection. The fluid was sterile in every instance, and in no case was there peritonitis.

Other observers have found the same to be true clinically. This fact is well illustrated by a case coming under my own observation. A young man, the victim of a railroad injury, soon after developed a large quantity of fluid in the peritoneal cavity. The trocar showed it to be almost pure bile. It was drawn away a number of times, when it ceased to appear. About three weeks after the injury, in getting out of bed, he slipped and fell; death followed in a few hours. Post mortem revealed a partially healed tear on the under surface of the liver, which had again been torn open by his fall, with fatal hemorrhage. The bile that had escaped from the primary injury into the abdominal cavity had produced no peritonitis or any constitutional disturbance of note. Though bile may thus freely escape into the peritoneal cavity without danger, it is of common observation that it is far otherwise when it finds its way into the circulation or is retained in the tissues. Ehrhardt, in the same set of experiments mentioned above, found that his dogs died in from two to six days. The tissues were saturated with bile, while the thoracic duct was distended with it to its subclavian end.

It is of interest to note that by introducing some mild infective agent, such as a pure culture of bacterium coli into animals whose gall-bladders were at the same time snipped open, that while many died, two recovered, and in these two he found bile-stained fluid encysted within the peritoneal cavity, which was evidently not absorbed on account of the thin layer of fibrin which covered over everything. This coincides with what Davis reported before this society at its meeting in Indianapolis, in 1899. In a case of gunshot wound in which there was a large quantity of bile encapsulated in the peritoneal cavity, the patient made a recovery after repeated tappings. Ehrhardt found his dogs all went well until these adhesions were broken down, when they promptly died.

The conditions of the liver requiring surgical intervention are rather numerous; traumatism, is no doubt the most frequent. Tilton[19] says the liver is more often injured than any other solid abdominal viscus, inasmuch as it lies wedged between the vertebral column and the ribs. It is heavy, inelastic, and very slightly movable.

A history of injury in the right hypochondrium, with symp-

toms of shock, internal hemorrhage, and muscle rigidity, points to injury of the liver. Pain, radiating to the right shoulder, with gradual increase on pressure is ofttimes present. Lack of mobility of the right chest may lead the surgeon astray, pointing to intrathoracic trouble. Wiggin[20] believes that delayed vomit or stool, in abdominal injuries, is indicative of rupture of the liver with no laceration of its coverings; the blood being forced into the hepatic duct and then into the duodenum.

Tilton (see above) finds that the prognosis is better in gunshot wounds and stabs, than in subcutaneous rupture, providing no other organ is injured. In twenty-five cases, eleven died, or 44 per cent.; twenty were operated early with mortality of 40 per cent.; ruptures operated, mortality was 62½ per cent.; stabs operated, mortality 33½ per cent.; gunshot wounds operated, mortality 28½ per cent. Thöle collected 399 cases of liver wounds treated by operation. Expectant treatment formerly gave mortality of 66 per cent.; while operation now gives 39 per cent. He says the present tendency is to operate in every case when signs of muscle rigidity are present, and advises in open wounds to enlarge and explore to find the extent of the injury. In subcutaneous injury, he thinks the expectant plan is justifiable where no marked muscle rigidity exists, no dullness in the right iliac fossa, no increasing abdominal pain, even if the nature of the injury does point to some degree of laceration.

Three methods of exposing the liver in trauma are mentioned. (1) Micheli makes two incisions, from the lower border of the fifth rib converging downward to meet at a point two inches below the costal margin; from there a single incision is continued downward as far as necessary. One of these starts from the parasternal line, the other in the anterior axillary line. Underlying ribs are resected, and the peritoneum, pleura, and diaphragm are incised.

(2) Guidone makes an incision starting from the upper border of the seventh cartilage, which is carried downward to the costal margin, and from this point a transverse incision is made upward to the tenth intercostal space; this incision respects the pleura and diaphragm.

(3) Martinelli makes a vertical incision, commencing a finger's breadth from the right ensiform cartilage and extending downward. Second incision commences at the upper end of the first and follows the costal margin. A triangular muscular cutaneous

flap is drawn downward and outward while the ribs are elevated upward. In this manner a good view is obtained of the left lobe of the liver, and a part of the anterior and superior surface of the right.

Liver abscess is of interest to us in connection with our island possessions, and it should be looked for in patients coming from those parts, as records of two years from Manila, First Reserve Hospital, and from the Army Hospital of San Francisco, show liver abscesses in five per cent. of the cases. T. L. Rhoads[20] says the majority of the cases give a history of a previous attack of dysentery, but its absence should not be misleading. Seventy to eighty per cent. of all abscesses are in the right lobe, as the right branch of the portal vein is the shorter, wider, and more direct route for the blood, and as a consequence in the majority of instances, liver dulness is increased either up toward the nipple or down below the costal margin. Occasionally, when the left lobe is involved, this enlargement is down towards the spleen. Patients complain rather more of dragging sensation over the liver than of pain, though pain may be present, short and stabbing on deep inspiration. In about half the cases there will be a rise in temperature of two degrees toward evening. Patients have a sense of chilliness, though actual chills are rare. The pulse will reach 90 to 100 in the evening, but if a mixed infection is present, the pulse and temperature range higher. The leukocyte count varies between 12,000 and 40,000. Osler has recently reported three cases in which there was no leukocytosis. There is an anemia of 1,000,000 to 1,500,000 red blood corpuscles with 60 to 80 per cent. hemoglobin. The x-ray may occasionally help if the abscess is superficial.

We may treat liver abscess after three methods.

First, immediate drainage.

Second, exposing the liver and allowing it to become adherent to the abdominal wall, opening twenty-four hours later.

Third, trocar and cannula with syphon drainage. The English seem to be the main exponents of the latter treatment. Manson[21] and Cantlie[22] report twenty-eight cases with four deaths which were treated after this manner.

In America I believe immediate drainage is generally employed, it being considered that waiting twenty-four to forty-eight hours for adhesions to form is wasting valuable time. In my own hands, however, I have met with best success by first incising the abdominal wall, and after thirty-six or forty-eight

hours opening the abscess and draining. Treating with a trocar and cannula carries grave danger of infection and hemorrhage with it, and in my opinion should not be employed.

Aspiration for the location of pus is advocated by some. Cantlie[23] warns against using the same needle for successive punctures, unless it be resterilized.

Elliott,[24] after locating pus with a needle, removes the barrel and leaves the needle *in situ*, as a guide, waiting for five or six days before completing the operation. Rhoads[25] makes no preliminary aspiration, but after opening into the peritoneal cavity, palpates the liver carefully for irregularities, adhesions, and a peculiar resisting, tense bogginess that he thinks is characteristic of pus, then opens.

Elliott (vide) gives three routes for operation.

1. Transpleural, anterior and posterior.
2. Subpleural, anterior.
3. Transperitoneal, anterior and posterior.

In choosing a route it is advisable to open at a point nearest the surface of the liver over the abscess where, after evacuation, the best drainage can be secured. Where the location of the abscess is not clear, it is advised to open the abdomen by the anterior transperitoneal method, as abscesses are oftenest in the right lobe and nearer the anterior than the posterior surface. If drainage cannot be satisfactorily carried out by this route, close up, and open elsewhere.

Rhoads[26] has at considerable length and in detail described methods for dealing with abscess.

TUMORS.

The liver is occasionally the seat of new growths which are in very many instances operable. Among the tumors which have been removed, have been carcinoma, angioma, syphiloma, cavernoma, endothelioma, angiofibroma, adenocystoma, cysts, ecchinococcus, and hydatid, and portions of the malformed lobes of the liver.

Thöle[26] reports 148 liver resections with an absolute mortality of 16.8 per cent., and a relative mortality of 6.08 per cent. Keene[27] appends a list of 76 cases of liver resection, in which the mortality was 14.9 per cent. The age varies between wide limits. The great majority of cases are in females, due chiefly, Keene thinks, to the tight clothing worn by women. He emphasizes the difficulty in diagnosis. Most of the cases which

he tabulated in his paper were wrongly diagnosed. Both he and Thöle mention the frequency of an area of tympany between the tumor and liver, which is very misleading. Keene says that when a tumor falls and rises with respiration, it should lead us to suspect a connection with the liver. In addition to the presence of this tympanitic zone, Thöle emphasizes two other points. First, the uncertainty of stomach analysis, inasmuch as there is often absence of free hydrochloric acid and the presence of lactic acid in liver tumors as well as in stomach cancer. Second, the difficulty of differentiating between kidney and liver tumors.

Of the duration of life with these tumors, it of course varies considerably. Fourteen cases lasted less than one year, and others from that time to as high as 15 and 18 years. Cancer is said to have existed in one case for ten years, and cases of cancer were well two, three and seven years after operation. It is usually believed that only primary cancers should be attacked; if this teaching should finally be adopted operation for cancer of this organ would be of rare occurrence, for primary cancer of the liver is seldom seen. Various methods for the resection of the liver have been employed:

1. Intraperitoneal method, *i.e.,* the stump after ligature is dropped into the peritoneal cavity.

2. Extraperitoneal, *i.e.,* with the stump fastened into the wound. There are three extraperitoneal methods.

a. Liver containing the tumor is sutured to the abdominal wound and allowed to remain until firm adhesions form, and at a second operation the tumor is removed. (Not generally adopted.)

b. Liver is fastened to the wound by sutures, and surrounded by an elastic ligature, which remains until gangrene appears, when the mass is cut away. This method is objectionable owing to the grave danger of sepsis.

c. To secure the tumor to the wound and excise it.

Anschuets collected ninety-six cases of resection, seventy-five of which recovered, and seventeen died from operation. These were tumors of all kinds.

Ten done by excision, tamponnade, and compression. One died.

Seven done by thermocautery. None died.

Six done by preliminary clamping and excision. Two died.

Twenty-five done by excision and deep ligature. Two died.

Twenty done by intrahepatic ligature and excision. Six died.

Twenty-four done by elastic ligature. Six died.

In resecting, the incision is best that exposes the tumor well and gives plenty of room. Ribs and cartilages should be resected if necessary. Freeman[28] says, when necessary, the suspensory ligament may be divided. In all of these operations the control of hemorrhage is the most serious consideration.

Thöle used a silver flexible probe to pass his ligatures in operations of this character. Keen prefers the Paquelin cautery for the removal of the tumor and at the same time to control the hemorrhage. The point should be at a dull red heat. He found that he could burn slowly through the tissue to the large vessels, which could be secured and ligated before they were severed. He prefers by all means the intraperitoneal method of treating the stump. Where possible, he says, make the stump in the form of flaps, and where that cannot be done, sear it well and wall off with gauze.

Warren[29] removed an adenocarcinoma of the liver with the Paquelin cautery and knife, with no hemorrhage. Wound was drained with gauze. Good recovery.

Freeman (vide) operated an adenocarcinoma, isolating the tumor first by means of deep intrahepatic ligatures of narrow folded gauze, which were tied very tightly to compress the liver without cutting it. Tumor was then removed by the knife with no bleeding. He had great difficulty, however, in removing the tapes, and advises hereafter that they either be drawn tight and clamped, or be tied with catgut. The patient made a good recovery, and was well sixteen months after operation.

Rome[30] removed a tubercular mass from the liver in a woman aged 42. Tumor occupied the lower right lobe of the liver. He outlined a wedge-shaped piece of the liver, including the tumor, by means of heavy catgut sutures, which were introduced on one side of the triangle, and going through the thickness of the lobe, were brought out on the opposite side and left untied, the wedge was then removed, cut surfaces immediately approximated, and the sutures tied. There was no hemorrhage. The wound was closed without drainage, and the patient, made a good recovery.

The diagnosis of gummata tumor masses of the liver is very difficult. The history is really the only diagnostic point of value, and even that is not at all reliable, as at least half of our patients deny infection. Cumston[31] says hepatic gumma may be mistaken for almost any disease the liver is heir to. An enlarged

spleen may occasionally help in the diagnosis, as it does not occur in cancer. Neusser and Cabot say that decided and relative increase of lymphocytes and eosinophiles point to lues.

As to the advisability of operating for hepatic lues, the French and the German advise strongly against it. Anschutz[32] says, close up the wound and don't do anything, as Kl and Hg will cure. Cumston[81] reports three cases in which an exploratory operation was done.

CYSTS.

Kehr[82] says—Echinococcus are the cysts of most interest. They are usually single and in the right lobe, they change the shape of the liver only if near the periphery. They may cause all sorts of pressure symptoms, as the nearby organs or the large vessels are encroached upon. Kehr says never to do an exploratory puncture unless you are prepared to follow at once with an operation. He makes an incision over the tumor longitudinally, packs off its neighboring tissue, puts in a trocar and then incises. He then draws the sac well out of the wound and sews its edges to the peritoneal wall, when it is carefully cleansed and irrigated with salt solution and drained. He has operated twenty-five cases by this method and did not contaminate the peritoneum in any instance. The discharge of bile sometimes amounts to a quart a day. If this discharge persists for months, curetting or packing the external fistula may reestablish internal drainage. If it does not, there is some obstruction in the lower biliary tract, which must be removed with a second operation.

Multilocular echinococcus is less common, is almost always in the right lobe, and the bile and bloodvessels are involved with the growth, which on section is white or green, and looks like a sponge.

The treatment is, of course, radical excision. No other treatment is of any avail. Auvray[88] was able to collect 31 cases of actinomycosis. This condition may be either primary or secondary, the latter more common. The primary lesion is often in the cecum or appendix, and may involve the liver by continuity, directly, or spread through the retroperitoneal cellular tissue. Iodide of potash is of no benefit and in six cases of operation in this series none recovered.

HEPATOPTOSIS.

Steele[84] collected something over one hundred cases of floating liver. He says there are two forms; total hepatoptosis, where the

liver is dropped from its normal position, so that it touches the diaphragm only along the line of its posterior attachment; 2, antiversion, where the liver rotates on its transverse axis, so that the anterior edge is displaced downward, the upper surface keeping in contact with the diaphragm, and the anterior abdominal wall.

Faure[35] shows that the most powerful agent in retaining the liver in place is its attachment to the inferior venacava. The broad ligament that binds the liver to the diaphragm is the one most likely to give way.

Causes are tight lacing, weak extensible condition of the suspensory ligament, low intraabdominal tension, due to an atonic condition of the abdominal wall, injury, or heavy lifting.

Symptoms.—One of the most characteristic, according to Steele, is attacks of colic in the right hypochrondrium, with or without jaundice. In addition, there may be a feeling of weight in the liver region, intestinal indigestion, and a long train of nervous symptoms. The liver can be felt somewhere between the costal margin and the brim of the pelvis.

The best method of palpating the liver is that described by Glenard. The patient lies on his back with knees extended and shoulders raised; surgeon sits on the right side and grasps the right loin of the patient between the thumb and the fingers of the left hand, while with the right hand he presses the mass of intestines upward under the liver; with the hands in this position, the patient is instructed to take a deep inspiration; during this inspiration the thumb is made to slide from below upward and outward and from behind forward. The edge of the liver should pass the thumb.

Treatment.—Many are helped by abdominal bandage. Operation offers a radical cure where there is no general enteroptosis.

Methods.—Treves fixed the liver to the anterior abdominal wall by several rows of silk sutures, which are passed well under the gland.

Carstens[36] reports a case in which he denuded the anterior wall of the liver and the anterior wall of the peritoneum, brought the two together, and then brought forward the coronary ligament and stitched it to the upper angle of the wound. Patient improved much.

Depage[37] places the patient in the Trendelenburg position, replaces the liver, makes a six-inch incision parallel to and one inch below the free border of the ribs, and turns up the cut edge of peritoneum under the edge of liver and sutures the

liver between the two layers of peritoneum, that is between the parietal peritoneum and its reflected edge.

HEPATOTOMY—LIVER DRAINAGE.

It is occasionally necessary to drain the liver directly on account of some obstruction in the ducts.

W. E. B. Davis[38] found that by making a fairly large incision in the right lobe of the liver and packing, he was able to relieve cholemia and to drain it. He employed this method where for some reason the obstruction could not be removed at the first operation, and found that it relieved toxic symptoms, reduced the enlarged gland, and enabled the patient to sufficiently recover to undergo a more radical operation.

Deaver[39] claims that this procedure is of no advantage, as he has accidentally torn the liver in some cases, and failed to get drainage of any value.

Kehr[40] recently had a case in which the ductus choledochus was so firmly embedded in adhesions that drainage by that means was impossible, so he removed an elliptical piece from the under surface of the liver edge 6 cm. long, 3 cm. wide, 2 cm. deep, and bringing up the nearby duodenum, made an incision 6 cm. long in that, and sutured it directly to the liver incision. Wound closed without drainage. Patient made a good recovery and was discharged in a month. The result in this case is of much importance in dealing with cholemia.

CIRRHOSIS.

The surgical treatment of cirrhosis of the liver is distinctly a modern achievement in liver surgery.

Talma, of Utrecht, in 1895 was the first to recommend surgical interference in this disease, for the relief of the accompanying ascites.

Working on the theory that an insufficiency in the collateral circulation of the blood causes ascites, he proposed to open up new blood channels by bringing the portal system into close relationship with the systemic venous system.

He had noted on post mortem, in cases of cirrhosis with no ascites, that vascular adhesions existed between the liver and parietal peritoneum, and concluded that a collateral circulation was established through these vascular adhesions, which relieved portal obstruction and thus prevented ascites, so he recommended operating to form new adhesions artificially.

But in operating to relieve ascites, other factors than hypertension of the portal vein have to be considered in the causation of this condition. Tubercular peritonitis is not infrequently present, and some believe that changes in the peritoneum contribute largely to the causation of ascites. In view of these facts it is well to take into account the condition of the peritoneum before doing any operating.

Cumston[41] says that the peritoneum must be vivacious and susceptible of giving rise to extensive adhesions in order to secure a favorable result. He even advises an exploratory operation to determine the condition of the peritoneum, and the nature of the liver lesion, if they cannot be determined otherwise.

The earlier the case is operated the better is the chance of success. The operation consists essentially in uniting the omentum to the parietal peritoneum with as broad an area as possible. The omentum and liver should be scarified by knife, rubbing with sponges, or with stiff brushes, and then should be united by interrupted silk sutures. Drainage should not be employed, owing to the danger of infection. Tapping will probably be necessary for several months after the operation, until the collateral circulation is established.

The best anesthetic in these cases is a local one, where possible, and where we can't use this, ether should be employed. A number of cases are recorded where deaths following the administration of chloroform have been found at post mortem to have been the subjects of fatty degeneration of the liver, and it is believed that there was a direct connection between them.

Prognosis varies, depending upon the nature of the case. The small atrophic liver offers the poorest prognosis, inasmuch as there is here the greatest damage to the liver cells. The mortality is given by Alexandre[42] as 41 per cent.

Hypertrophic cirrhosis where there is less damage to the liver cells, offers a considerably better prognosis. Alexandre, same as above, gives 70 per cent. cured, mortality 15 per cent.

Ascites associated with luetic liver, and with cardiac diseases should not be treated surgically, and would only tend to discredit the Talma operation if it were employed in these affections.

In conclusion, I am convinced that with a knowledge that hemorrhage of the liver is easily controlled, and that the liver has the power of regeneration in great degree and with better con-

trol over infection than formerly, it only remains that we improve our present methods of dealing with the bile, so preventing cholemia, when the liver will be attacked surgically much more frequently than at present.

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DISCUSSION.

DR. JOHN YOUNG BROWN, Saint Louis.—I have listened with a great deal of interest to the admirable presentation of this subject by the essayist. I consider it one of the most important subjects in surgery. I wish to limit my remarks to discussion of that part of the paper which refers to the treatment of injuries to the liver. In dealing with a condition of this kind, as in dealing with surgical conditions elsewhere, it is very essential that the surgeon adjust his surgery to meet the conditions that confront him. In order to intelligently discuss the surgery of the liver, it is necessary to first classify these injuries.

My experience in this work has been quite large, and I have found that we have to deal with clinically two varieties of wounds. First, those in which the liver and large vessels are so injured that the patient is practically dead before he reaches the operating table. Second, those in which the injury is less severe, and in which immediate operation will frequently save life. Wounds of this character may be open wounds or subcutaneous wounds. Again, we have the simple wounds of liver; that is, those in which the liver alone is injured, and second, complicated wounds of this viscus; that is, wounds in which, in addition to the liver wound, there exists wounds of other organs, such as lung, diaphragm or stomach, gall-bladder and intestines. I recently reported, to my mind, a very interesting case, which illustrated very clearly a complicated liver wound. This patient was an Italian, admitted to the St. Louis City Hospital, shot through and through from side to side. He was immediately prepared for operation. Two wounds of the stomach were repaired. The gall-bladder was found doubly perforated. Cholecystectomy was done, and a large wound in right lobe of liver, from which there was a terrific hemorrhage, was controlled by gauze packing. Patient made a nice recovery and has since returned to his home in Italy.

A second case, which illustrates a subcutaneous wound of the liver, was also repaired. This patient was admitted to the hospital with history of having been run over by a wagon, crossing his body just below lower border of ribs. On admission he was suffering greatly from shock, the result of hemorrhage. After careful preparation and hypodermoclysis, abdomen was opened and liver was found badly lacerated, the rupture being located in right lobe, extending from lower border well back into liver tissue. The spleen was also ruptured, necessitating splenectomy. The hemorrhage from wound in liver was controlled by gauze packing, supplemented by suture. This patient also made a nice recovery.

Wounds of liver resulting from a bullet can generally be diagnosed without difficulty. The hemorrhage is such as to

profoundly shock the patient, and as shock, to a marked extent, is absent in gunshot wound, unless there is hemorrhage, we can as a rule, from the location of the wound of entrance, conclude with a reasonable certainty that the liver is wounded.

Diagnosis of the subcutaneous liver wounds presents some difficulty. I, however, have found that where profound shock is present, it generally indicates hemorrhage, especially if accompanied by muscular rigidity, and I am convinced that early, in fact, immediate, exploration should be made in all such cases.

In the last six months I have had a very interesting series of cases of this character. In two of them there was injury to bowel, and in two others injury to liver. Both cases of rupture of liver recovered, as did one of rupture of liver and spleen. The two cases where the bowel was ruptured both died, as they were suffering on admission to hospital with diffuse general peritonitis. These cases emphasize the importance of early exploration in all cases of abdominal contusion where there is the slightest symptom indicating injury to the peritoneal viscera.

My experience with uncomplicated wounds of the liver has been exceedingly satisfactory. I have found not only in gunshot wounds, but in stab wounds, where the liver alone was injured that early operation gives a small mortality rate.

As to the method of controlling hemorrhages of this character, I have found that the gauze packing is the quickest and most reliable method. It is invariably my custom in such cases to pack wound with gauze and bring gauze out through stab wound over site of injury. I have found that by using the Mayo Robson pad under the shoulders the liver can be pulled down and wounds can be readily packed. The incision through the abdomen is always made in the median line. If hemorrhage from liver or spleen is found, and there is any difficulty in controlling it through median incision, the rectus is cut across.

There is one point in regard to the use of gauze I would like especially to emphasize, and that is the importance of allowing the gauze to remain seven or eight days. I lost two cases from secondary hemorrhage, which gave every promise of recovery, by attempting to remove gauze too soon. As to the dangers of colemia, I have no ill results from bile leakage. I have time and time again noticed the dressings were badly soaked, but never seen any indication of bile infection.

By early operation, the careful use of gauze tampon, supplemented by suture in suitable cases, hemorrhage from the liver can be satisfactorily controlled. The character of suture which I have found of value is of the heaviest catgut, threaded on a large round needle. The suture is taken wide of the wound and lightly tied. The method suggested by the essayist commends itself to me. Quite recently there appeared an able and beautifully illustrated article in the *Journal of the American Medical Association*, by Dr. Frank, of Chicago, giving, in detail,

the technique used by him for the control of hemorrhage from this organ. From a theoretical standpoint his deductions were satisfactory, but from a practical point of view, I do not think we can do such precise surgery when a patient is bleeding rapidly to death from a wound of this character. Patients bleeding rapidly need quick and thorough surgery, and the best method of controlling hemorrhage in my experience is the one which will accomplish the purpose the quickest. I have found gauze properly used of great value.

There is another point I would like to discuss, and that is the drainage and irrigation of these cases. In simple wounds of the liver it is my custom to irrigate without drainage. The irrigation is done for the purpose of stimulation. The peritoneum rapidly absorbs the salt solution, and as these patients, as a rule, have bled freely, as much saline should be gotten into their circulation as possible. Where the wound is a complicated wound and there has been injury to bowel, I believe it is wiser to drain in addition to irrigation. The drain used is a glass drain put in the vesico-rectal pouch through the stab wound above pubes. The after-treatment consists of frequent hypodermoclysis and rectal injections of saline solution.

DR. CHARLES L. BONIFIELD, Cincinnati.—I wish to report one case because I think liver surgery is so rare as yet that every case we encounter is worthy of report.

I was called to see a patient in Kentucky, who was shot with a revolver by one of his companions. In opening his abdomen I found it filled with blood, and the only injury I was able to find was one similar to that described by Dr. Gillette in his case. There was a tear through the lower margin of the liver. The bullet had gone through so near the edge that it produced a rough, jagged tear, instead of a round hole. The hemorrhage was controlled by two mattress sutures of catgut, placed far from the wound.

DR. ROBERT T. MORRIS, New York.—There are one or two points in connection with Dr. Gillette's paper that are worthy of special consideration. I am glad to have the resource he has mentioned for the control of hemorrhage. On the other hand, we are likely to be inclined to use it too often. That is a point of a good deal of moment. Whenever we injure the parenchyma of almost any organ there is apparently at the outset an alarming hemorrhage. It bleeds to such an extent that the assistants are frightened. If we make a small incision in the lung the hemorrhage may be so free that we become very anxious to check it. In a case of injury to the spleen, for instance, in separating adhesions, we may tear the tissues a little and produce seemingly a dangerous hemorrhage; but if we keep right at work, disregard the hemorrhage, and do not stop working, the hemorrhage will cease by the time we are through with our work. That is a practical point. If we stop to check this apparently dangerous hemorrhage, we waste time. If we

massage the structures, in trying to stop the hemorrhage, we lose the original object of the operation, for the hemorrhage in our massage keeps up in the parenchyma of the liver, the spleen, the lung or brain. Therefore, we must learn to disregard an apparently violent hemorrhage from the parenchyma.

If this suture of Dr. Gillette's were strong enough to overcome the mechanical force, the hydrostatic power of the blood current, it would very rapidly cut out of the parenchyma of the liver, so that it would not be effective. We must, therefore, look for another cause for the assistance given by this suture, and that we have in the fact that these surfaces when approximated tend to adhere by a coagulum which forms within a few minutes. If we approximate the liver margins and hold them together in any way for five or ten minutes, it is hard to press them apart with a pair of scissors. When you approximate the margins you sometimes cannot get them apart five minutes later unless you use force. The mechanical feature of the formation of a coagulum on this surface is helpful in this approximation which Dr. Gillette obtains with his suture. Indeed, it is an important feature of the suture.

Another point is with reference to bile free in the peritoneal cavity. I have had free bile in the peritoneal cavity a number of times in making experiments on dogs and rabbits, and also in operating on patients in the past year, and the only effect from it was to produce such an impression as to cause a tachycardia, a pulse rate of 140, perhaps with a normal temperature. The pulse was sometimes above 140 for two or three days, and yet the temperature remained normal. My house surgeon telephoned me in great alarm once, believing the patient was going to die because the pulse was so rapid.

Shortly afterward I had a gall-bladder case in which there were extensive adhesions. Leakage followed cholecystectomy. There was a great deal of bile in the peritoneal cavity in this case, which only excited the vasomotors. If the colon bacillus should be in the peritoneal cavity in abundance along with the infected bile, then we have infection; but bile, fairly free from bacteria in the peritoneal cavity, can be borne in comparatively large quantity for such a long time that we need not give it much concern. We should take advantage of Morrison's pouch in disposing of blood from the liver and of bile, which can be readily done.

It is important to learn not to be afraid of some of the things that are referred to in our text-books. I remember very well in the early days in studying anatomy we were taught to avoid cutting this and that artery, so much so that it was a difficult thing for a young surgeon to go ahead for fear he was going to cut this or that little artery. But we now know that we cut arteries to get them out of the way. Thus, an apparently violent hemorrhage from a recently-injured liver, or a recently-torn lung, may, in many cases, be absolutely disregarded.

THE BYRNE OPERATION AND ITS APPLICATION IN THE RADICAL TREATMENT OF CANCER OF THE UTERUS.

BY

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CANCER of the body of the uterus is in many respects, especially in its clinical course, so different from that of the cervical variety, that it is necessary in the consideration of its treatment to regard them as two separate and distinct forms. Carcinoma of the body, unlike that of the cervix, is of comparatively slow growth, is less likely to extend to the parametria in its earlier stages, and glandular involvement takes place at a late period; hence it is less malignant in its course, in a clinical sense at least, than cancer of the cervix and its operative results probably surpass those obtained for cancer in any other organ in the body. In support of this statement I only need to adduce the statistics of Doederlein who in ten cases surviving operation (Fritsch and Landau in three respectively) had 100 per cent. of cures, all cases having been treated by vaginal hysterectomy. A reasonably early extirpation of the uterus seems to insure a complete cure in the majority of these cases. Whether done per vaginam or by the abdominal route is a matter of secondary consideration, and the procedure depends largely on the technical advantages which the one or the other route presents in a given case.

While the treatment of cancer of the body of the uterus seems therefore to be definitely settled, such is by no means the case with cervical carcinoma; in fact, the question of what to do with this form of cancer seems to be in a more chaotic condition than ever before. An ordinary simple vaginal hysterectomy is undoubtedly of little benefit excepting possibly in the very earliest forms, rarely seen by the surgeon, because the disease cannot be removed with sufficient thoroughness, especially in the parametria and surrounding vaginal tissues and implanta-

tion in the fresh wound surfaces with cancer elements cannot be avoided.

These two reasons account for the recurrences which take place after these operations at or near the vaginal scar in from 75 to 90 per cent. of the cases (Winter, Mangiagalli and others). These unfavorable results induced the writer about eight years ago to adopt a new method by which the uterus as well as a portion of the vagina could be removed in mass, thereby enabling a more thorough extirpation of the parametria and at the same time preventing all danger of implantation. (A New Operation for the Radical Treatment of Cancer of the Uterus Consisting of the Removal of the Uterus and Vagina *en masse* by the Suprapubic Method. AMERICAN JOURNAL OF OBSTETRICS, New York, March, 1898.)

This operation, which is now generally known as the Wertheim operation—the Wertheim operation is nothing more or less than the procedure first performed and described by the writer to which he subsequently added the extirpation of the regional glands according to the method originated by Ries—gave rise to sanguine expectations of better results in the treatment of carcinoma of the cervix and justly so, because the percentage of cures has unquestionably been increased by it, but unfortunately largely at the expense of our operative mortality. The average mortality of this operation in the hands of seventeen well-known operators, according to Gellhorn ("Sacrovaginal or Abdominal Operation in Carcinoma of the Uterus," AM. JOURNAL OF OBSTETRICS, July, 1905), is 21.5 per cent. or about four times that of the vaginal hysterectomy. The question under these circumstances natually arises, is the percentage of permanent cures by means of this new radical operation sufficiently large as compared with those of the older methods to justify its greatly increased risks? While no large statistics are as yet obtainable, it can safely be stated that few will surpass the results reported by Olshausen, of whose 169 cases surviving operation 38.85 per cent. were free from recurrence after five years; and these cases were operated by vaginal hysterectomy with a mortality of six per cent. ("Zur Statistik und Operation des Uteruskrebses," *Verhandlungen der Deutschen Gesellschaft für Gynaekologie*, 1901, p. 159). Zwiefel's primary mortality by vaginal hysterectomy is 5.45 per cent. with 35.6 per cent. of cures after five years. The same considerations induced the writer to abandon the abdominal method originated by him

at least as a routine procedure, over one and a half years ago, and when looking round for a good substitute his attention was directed by an article of R. Lomer ("Zur Frage der Heilbarkeit des Carcinoms," *Zeitschrift für Geburshilft u. Gynaekologie*, Bd. L.) to the cautery and particularly to the Byrne operation. By his method Byrne operated on 367 cases of cancer of the uterus, of which at the end of five years 19 per cent. were still alive, a result sufficiently remarkable when we consider that it was obtained by a simple minor operation without a single death.

The operative technique employed by Byrne is best described by himself (*Transactions of the American Gynecological Society*, Vol. 16, page 172). "An expanding double tenaculum forceps was passed well up the cervical canal, and when opened the uterus was so firmly held that any degree of traction could be steadily maintained. A circular fissure close to the vaginal insertion was next made for the reception of the platinum loop, the cautery knife being directed obliquely upward and inward. The wire being now adjusted and firm traction kept up, the loop was contracted at proper intervals (tightening the slack merely) until the part embraced was severed. A sharp curette was next passed within the uterine cavity, and the latter was thoroughly scraped out. Sufficient space having thus been made for another electrode, but having a larger cauterizing area, the interior was gone over so as to remove and destroy all softened and diseased tissue with which it might come in contact. The cavity was now sponged out very carefully and a tampon soaked in acetic acid and tannin applied for a few minutes so as to prepare the parts for the next and perhaps most important step of the operation. A dome-shaped cautery instrument brought to a cherry-red heat was applied to the excavation in every part, and when withdrawn the cavity was sponged out, dried, and again cauterized until the parts were completely charred and black." He further stated that "I have occasionally modified the proceeding just described by continuing the direction of the cervix from the bladder, rectum, and lateral connections as in vaginal hysterectomy and completing the amputation with the cautery knife instead of the loop."

Byrne in all his writings on the subject places special emphasis on the importance of thorough and repeated cauterization of the wound surfaces and edges from which cancerous material has been removed, regarding it as the "best safeguard against

a recurrence of the disease." He thinks that "there is hardly any doubt that the developmental activity of the cancer cells or germs, in certain stages and under certain conditions, may be arrested or permanently destroyed by a degree of heat much below that which would be detrimental, if not destructive, to normal tissues; he is certain that the thermal agent exerts some modifying influence on pathological processes much beyond and deeper than the surface actually cauterized, hence the importance of repeated applications so that every spot suspected of contamination may be thoroughly charred" (Byrne, *Transactions of American Gynecological Society*, Vol. 14, 1889).

The most remarkable feature of the Byrne operation when compared to all other operations undertaken through the vagina for the cure of cancer of the cervix, and one which seems to justify Byrne's conclusions above cited, is the almost uniform absense of local recurrences. Byrne says (*Transactions of the American Gynecological Society*, 1888, page 188): "I have never known an instance of relapse in which the disease has returned to the part from which it had originally been excised. I have repeatedly observed the reappearance of the disease in the fundus, ovaries, or some of the adjacent tissues, but I have never known a single instance in which the disease has reappeared on, or very close to, the cauterized surface from which the cervix had been removed by galvano-cautery." This result certainly seems to demonstrate the fact that the influence of the cautery extends much beyond the surface with which it is in contact, and destroys cancer elements much beyond the actual field of operation, showing a marked superiority to the knife or other cutting instruments. The cause of the absence of local recurrences following the cautery must be attributed not only to the deeper destruction produced, but also to the occlusion and obliteration of all blood and lymph vessels in the field of operation, making absorption and implantation of cancer elements unquestionably a fruitful source of recurrence in the ordinary cutting operations, an impossibility.

It is particularly this feature of the operation, namely entire absence of local recurrences, that very forcibly impressed the writer, as it seemed to show a way by which the main causes of such frequent local recidives in the vaginal operations for cancer of the cervix might be avoided without resorting to the very dangerous expedients now in vogue. Simple cautery amputations of the cervix, though so successful in Bryne's hands,

hardly meet the requirements of modern surgery, which favors complete extirpation of the organ and its appendages, especially as that can be accomplished with but little more risk and should considerably enhance the patient's chances of a permanent cure. Even Byrne himself admits that in many cases he saw the disease return in the fundus uteri and ovaries; had these been removed many more permanent cures might have been effected.

While employing the method described by Byrne in my first cases, I invariably followed it by the ablation of the remaining portion of the uterine body and appendages. Subsequently, however, I simplified the procedure very materially by dispensing with the preliminary amputation of the cervix, which is in itself a tedious and time-consuming operation without any signal advantage when the extirpation of the entire organ is intended. The principal features of the Byrne operation, however, have been retained—namely, thorough and repeated cauterization of all wound surfaces and edges. The operation, therefore, differs from the usual vaginal hysterectomy by the use of the cautery knife for detaching the cervix from its vaginal connections, the application of the electrothermic clamps devised by Downes, and the final cauterization of the stump with the dome-shaped cautery. An extensive resection of the parametria is, of course, regarded as an essential requirement for a successful operation, as recent researches have shown that in 50 per cent. of the cases the parametria are more or less involved, even though they present no clinical evidence of extension to these tissues.

The technic employed at the present time is as follows: the cervix is curetted, with a heavy, sharp spoon curette until all necrotic tissues are removed, and the bleeding surfaces cauterized until all oozing is controlled. The cervix is then firmly held by volsella forceps and an incision is made entirely around the cervix at a considerable distance from the affected area by means of the cautery knife, keeping it at dull heat and never turning on the current until the knife is placed against the tissues to be burned. In this manner no oozing will take place and the parts will remain perfectly dry. While making traction upon the cervix the dissection is carried up carefully between the bladder and uterus, an assistant with a retractor drawing the bladder well away from the hot knife. With the aid of the index finger the peritoneum is then reached and opened with a blunt scis-

sors. Douglas's pouch is opened posteriorly in the same manner and the lateral vaginal attachments are burned through. The bladder is then widely separated from the uterus and broad ligaments by inserting the index fingers of both hands with the palmar surfaces directed towards both pelvic walls and making firm lateral traction. The fundus uteri is then seized with volsellum forceps and dragged down into the vaginal outlet, while a broader retractor in the hands of an assistant holds up the bladder against the symphysis pubis and well out of the way during the subsequent steps of the operation. Pads are now introduced into the pelvis to hold back and protect the abdominal contents. Ordinary heavy clamps are then applied to the whole broad ligament, first on one side, two usually being required on either side; the same procedure is then repeated on the other side and the entire uterus and appendages removed.

Thus far the operation differs very little from the old clamp method of vaginal hysterectomy excepting that all incisions have been made with the cautery knife. After packing off the pelvic cavity very carefully with gauze pads, the upper clamp on the infundibulo-pelvic ligament is seized, the ligament put on a stretch and a Downes electrothermic clamp applied externally to it; protected by the shield and additional pads, if necessary, and the tissues included in the forceps are then thoroughly cooked until a good ribbon is obtained. The Downes clamp is then removed, the ribbon cut through near its inner edge, and, if after a few moments no bleeding occurs, dropped. The next clamps are then treated in exactly the same manner until both ligaments and all other uterine attachments have undergone this cooking process.

The large, broad Downes clamps should always be used in this operation, as the smaller forceps is scarcely sufficient protection against bleeding, the narrow ribbon often opening up immediately after the clamp is removed requiring ligation of the bleeding vessels, while the larger broad ribbon rarely gives any trouble. Careful attention should be given to the oiling of the clamp surfaces, as neglect in this matter frequently causes a baking of the boiled tissues to its surfaces, thereby preventing the formation of the desired paper-thin ribbon and resulting in free hemorrhage. If no bleeding is observed for a period of one minute the stump can be safely dropped and hemostasis is fully as secure as by means of ligatures.

The application of the ordinary clamps and the removal of

the uterus first before resorting to Downes's instruments gives the operator this distinct advantage, that the field is under better view and control, and by using the clamps on the broad ligaments as handles we can expose a larger portion of the ligaments and get a better bite with the Downes instruments than would be possible if we applied the latter while the uterus is still *in situ*. Particularly is this the case with the base of the ligaments or parametria on the extensive removal of which the successful issue of many cases will depend.

The last step of the operation is another cauterization of the stumps. For this purpose the parametrial pedicles are gently grasped with forceps, and after the surrounding tissues are carefully protected with pads they are completely seared and charred with the dome-cautery. It will be seen that the Bryne principle of thorough and repeated cauterization is carried out literally in this operation, because not a single structure from which extension of the disease might occur escapes repeated exposure to heat sufficiently intense to insure destruction of all cancer elements, not only in the parts directly treated but probably for some distance beyond. We therefore not only remove large portions of the parametria, but we try by repeated cauterization, for which Byrne so insistently pleads as the best safeguard against recurrence, to destroy the cancer elements in at least a part of the tissues remaining.

The final steps of the operation, after thorough cleansing of the pelvic cavity and vagina, are the grasping of the bladder peritoneum anteriorly, and the peritoneum of Douglas's pouch posteriorly, and uniting the two surfaces by a few catgut sutures, thus closing the pelvic cavity but leaving sufficient space on either side along the charred stumps of the parametria to insert an iodoform gauze drain, which is left in place for about four or five days.

The remarkable feature of the convalescence of the patients operated on in the manner described is the entire absence of pain. No other operation is followed by so little discomfort; patients usually make an ideal recovery.

Of the sixteen cases operated on by me only one died, about four weeks after the operation, from uremia, the result of renal disease from which she is supposed to have suffered for ten years previously; the operation itself may have hastened, but not caused her death.

That the cautery method is a little more liable to be followed

by injuries of adjacent organs must be admitted, though with a little more experience they can, no doubt, be reduced to a minimum. In my cases the bladder was injured twice, once with the fingers in separating it from the uterus; the tear was immediately discovered and repaired, but leakage occurred about ten days later. The case was an adenocarcinoma of the cervix, rather far advanced, which had extended to the bladder wall. In a third case a rectovaginal fistula resulted. No other injuries were encountered.

It may be objected that in abandoning the suprapubic hysterectomy in favor of the vaginal method we are taking a step backward, because we cannot expect to do as radical work per vaginam as through the abdominal route, and above all we must give up all efforts to remove the regional glands. There are no doubt cases which can best be managed from above, but with the aid of Schuchardt's vaginal incision the pelvis can be made so accessible that but few cases cannot be satisfactorily dealt with from the vagina. In regard to the routine removal of the lymphatic glands recent investigations, especially those of Schauta, have demonstrated that the complete extirpation of all glands liable to become involved is a surgical impossibility. If that be the case no good can result from a partial removal, and as this additional step of an already dangerous operation increases the primary mortality quite considerably, the sooner it is abandoned the better for our patients.

Wertheim's experience, whose cases, in which the glands were found diseased, practically all had recurrences, is a fairly convincing proof of Olshausen's statement, that when the lymphatic system has become extensively involved a hopeless stage has been reached.

DISCUSSION.

DR. WALTER B. CHASE, Brooklyn.—First, I wish to congratulate the reader of the paper on the position he has taken in the treatment of cancer of the cervix. A process of evolution is evidently going on not only in the mind of the reader of this paper, but in the minds of the medical profession at large.

The statistics of operative procedures for the radical cure of cancer of the cervix are as unsatisfactory as those of extirpation of the uterus for malignant disease. It is my fortune to know Dr. Byrne intimately and to witness his operations repeatedly, and while I remember the disfavor with which his

paper was received before the American Gynecological Society, at the same time I am confident of the fact that he enunciated principles which are worthy of not only our careful consideration, but of surgical following.

Dr. Byrne was a careful observer. He was a most conscientious man, and the statements he made regarding what he had done were modest in character. In what I may have to say, I am not going to argue against the entire ablation of the uterus for malignant disease by vaginal hysterectomy, but from my own experience I am confident that in the use of the thermo-cautery, galvanic or otherwise, we have a valuable method of dealing with malignant disease of the cervix which does not involve danger to the life of the patient, and is a consideration of great importance. At the time Dr. Byrne read his paper he had operated on approximately four hundred cases, and of this number he had not lost a single one. In my own experience this treatment has been encouraging. I can recall two or three patients upon whom I operated five years ago by the Byrne method, the results of which were satisfactory, and two other cases in which subsequently I had to do an abdominal hysterectomy, as there was a cauliflower excrescence filling nearly the whole vagina.

It was my pleasure a few years before Dr. Byrne died to be present at an operation performed by him in which he extirpated the entire uterus by the thermo-cautery, although no mention was made of this case in his original paper. I think those who have been practising vaginal hysterectomy, who have been doing high amputations, and have lost patients repeatedly, should hold in reserve this valuable method of the use of the cautery applied in the manner first indicated by Byrne, and elaborated by Dr. Werder, and that if they do so their statistics will certainly improve.

Dr. Byrne did not select his cases; he took them as they came. He operated on practically every case that presented; and yet look at the number of patients who presented themselves and were operated upon, and are living at the end of twenty years. Here is a point which Dr. Byrne made and insisted upon its value, that the heat-destroying power of the cautery was extended beyond the healthy structure and was sufficient to destroy the germs of the disease. It is in this particular the value of Dr. Byrne's method exists.

I hope the Fellows of this association will make a trial of the method. I remember very well the enthusiasm with which Dr. Werder some years ago presented to this association a method which he had adopted in treating these cases. I believe there are advantages to be gained in certain cases by using the thermo-cautery method in removing this form of disease.

Dr. Walter J. Corcoran, Brooklyn (by invitation).—I do not think I can add anything of interest to what has already been said. I was delighted, yet a little surprised, when I saw

the title of Dr. Werder's paper on the program, as I thought it would be heresy for any man to advocate the Byrne operation at the present time. Naturally, I am in favor of the operation because for many years I saw the evolution of it. I was associated with Dr. Byrne. Dr. Byrne conducted a large number of experiments; he burned the midnight oil in developing this method, and in those days surgery had not advanced to its present position, and such good surgical work was not done. I can simply confirm all that has been said with regard to the old or original Byrne operation. The statistics as presented do not do justice to Dr. Byrne and to the operation. Dr. Chase has told you that Dr. Byrne operated on every case that came to him, and half of the cases included in his statistics would hardly be touched by any other men except in the way of curettement and tampons. So the statistics of Dr. Byrne are even better than at first glance appears.

In cancer of the cervix in the incipient stage, I believe it is *the* operation, without going any further, as it will accomplish anything that can be done by hysterectomy if we go beyond the diseased tissue with the cautery. That has been the primary point with Dr. Byrne. Another point on which he laid great stress, and I believe it is true, is that the influence of the operation by the cautery extends far beyond what the knife touched. I refer to the electro-cautery. There is something more in the electric current than we know and can explain. It is there, but we do not know what t is. We do not know its action, but it is nevertheless there, and it accomplishes more than an actual burn.

The operation has been condemned very largely on account of the inexperience of those who have used it. Dr. Byrne used the instrument in an entirely different way from that of others. The temptation in using the cautery knife is to press on it the same as one would any other instrument, but that is wrong. It must be laid against the tissues and allowed to eat its way through. In addition, in the cases in which there is more extensive disease, and this applies particularly to cancer of the body of the uterus, where complete hysterectomy is necessary, the use of the original Skene clamp, as developed by Downes, I believe to be the acme of perfection in accomplishing the desired results. We have the influence of the electric heat extending through and perhaps beyond the tissues that are severed. When this method is fully developed, it will undoubtedly become the operation of preference.

DR. JOSEPH PRICE, Philadelphia.—There are many gynecologists and surgeons laboring under the misapprehension that the cautery has not been popular, and that surgeons have aimed to do purely clean extirpations. The cautery has been used very commonly and thoroughly throughout the country by a number of men.

Some years ago Sims was asked to deliver a lecture before

Oliver Wendell Holmes's anatomical class, and he selected for his subject, "The Cautery and Curette in the Treatment of Malignant Disease." In this lecture he urged the thorough and complete use of the cautery. Since that time the use of the cautery has been very general, and a number of men feel that there is very little difference between the thorough use of the cautery and the sharp curette, by using the old-fashioned, method and it is believed that patients live just about as long from the use of the curette and cautery as they do from clean extirpations. When surgeons began to do extirpations the patients died from recurrence of the disease, which involved the bladder or bowel, or they died from exhaustion. Death, however, was not apparently so painful as when recurrence took place in the viscera above. I have used the cautery for a long time in the treatment of the class of cases under discussion. I have used it freely and repeatedly.

I am told that the average life of a Harvard graduate is only forty-six years. A month in Europe does a world of good, or two months in Switzerland seems like a long period in our lives. Let us take a picture of a person living in a horrible atmosphere, bleeding all the time and suffering great pain. If we make a clean extirpation of the malignant tissues, in a short time that woman is likely to have rosy cheeks and a good appetite. She may become useful and live in a comfortable atmosphere. You prolong her life a year, fourteen months, or possibly two years by a clean extirpation of the malignant growth. I recall one patient in whom I used the curette and cautery four times. In this case I knew perfectly well that I could not do a clean extirpation. I was very doubtful about it, as the tissues were greatly involved in the malignant process. In this particular case, feeling that I could not do a clean extirpation, I used the curette and cautery a number of times, and that woman is now very happy. She thinks she is well, but she has some physical disturbance.

There is little or no value in electricity, and perhaps there is very little more in the use of the Paquelin cautery. I have had the opportunity of seeing many recurrences from electrical treatment. I have taken those patients who had recurrences and have literally cooked the tissues with Paquelin cautery, so that they have been comparatively comfortable anywhere from six to nine months, notwithstanding the recurrences followed electrical treatment. If the patients come to you with malignant disease who have been treated electrically, and you have an opportunity of using the Paquelin cautery, use it well. I find there are few men who do the cooking of the tissues that they should do. They rarely char and cook the tissues deeply. This is the way the cautery should be used in these cases.

Let me say a few words in regard to early vaginal hysterectomy. The mortality from early vaginal hysterectomy should be *nil*, as it is one of the easiest operations in surgery. You

can do it either inside or outside. It is an easier one to do outside than inside. These drawings that have been passed around show how easy it is for the uterus to be rolled out. I do nearly all my vaginal hysterectomies on the outside, so that I can have the uterus in my hand, so to speak. It gives me an opportunity to go far over and to cause a deeper slough. I want to go beyond the invaded structures, if possible, and if this is done the operation is really deeper than the cautery operation. If vaginal hysterectomy is done, or a clean extirpation is performed by the clamp method, I find that patients live just as long as they did after these cautery operations. I do not discourage, however, the use of the curette and cautery in this class of cases, for it is surprising how long these patients will live if you do a clean extirpation, or if you use the curette and cautery and cook the tissues deeply. Some of them go on and live for three or four years, perhaps longer.

DR. HERMAN J. BOLDT, New York (by invitation).—The subject of this discussion interests me very much. The cautery operation I reserve for that class of patients on whom the radical operation is not indicated; in other words, where the disease has gone beyond the boundaries of the uterus and has invaded the broad ligaments and parametria to such an extent that it is simply a question of time for a recurrence to take place, and in those instances in which the disease has advanced so far that it is impossible to do a hysterectomy at all.

So far as the cautery operation is concerned, I can corroborate everything that has been said regarding it. Patients are undoubtedly made more comfortable by it. They live a comparatively long period of time if the cautery operation is thoroughly done. There is, however, one instance in my own experience which I desire to put on record as showing that there is some secondary risk attending charring of the surface. Two or three years ago I did a very thorough cautery operation, and about two weeks or longer thereafter the charred tissue was cast off in the middle of the night, and the woman bled to death from a spurting branch of the uterine artery which the physician in attendance failed to control. I was called, and when I arrived there the woman was absolutely exsanguinated. We did the best we could. We tamponed with perchloride of iron cotton, but she did not rally. So there is some risk attending the cautery operation.

The danger to which Dr. Werder alluded, namely, secondary injury from the cautery, is undoubtedly present. I myself have had the experience after having done a vaginal hysterectomy for carcinoma, complicated by fibroids, where I subsequently used the cautery on the stumps, although the pelvis was previously packed with gauze. On one side the ureter sloughed four days after operation, and a day or two later the other ureter also leaked. At the present time the woman is living and in good health. A ureteral implantation was made

subsequently. No recurrence of the cancer took place. The cautery operation, with the cautery clamps of Downes I have had no experience with. I have been satisfied with ligatures, with either the abdominal or vaginal operation.

Dr. WERDER (closing the discussion).—I am very glad, indeed, that there are two gentlemen here who can confirm the reports of Dr. Byrne for the reason that on several occasions doubts have been expressed as to the reliability of Dr. Byrne's statements.

There has evidently been some misunderstanding, judging from the discussions, in regard to the operations I have described. I have never done the operation in the manner Dr. Byrne did it, without following it up immediately by the complete removal of the uterus and adnexa. I have always done a radical operation, making use of the cautery for that purpose, preferably the galvanic cautery. Personally, I do not think electricity plays an important rôle in this matter; it is the heat and cauterization, and it matters little whether you use the paquelin or galvano-cautery. The reason I use the galvano-cautery is because it is easier to handle than the Paquelin knife; I can do better work with it; it is not so cumbersome; and one can make the incisions more carefully than he can with the Paquelin. But the electricity simply furnishes the best means of getting heat, and has no other effect on this operation.

Dr. Price evidently misunderstood me. I distinctly stated that I first use the ordinary clamp operation to remove the uterus and adnexa, in about the same manner Dr. Price would do it, excepting that I make my incision with the cautery knife. In addition to that, after removing the uterus, ovaries, and tubes in the manner described, I take hold of the clamps, using them as a lever to make traction on the ligaments and parametrium, and then slip on the Downes's electrothermic clamp external to the ordinary clamp. By the application of these second clamps not olny additional tissue is removed, but the remaining stumps are thoroughly baked and cauterized, destroying unquestionably cancer elements far beyond the line of incision. After this all the clamps are taken off and the tissues should all be dry; the stumps are then grasped very gently, carefully inspected, and with the dome-cautery once more seared and burnt before they are dropped.

I do not see how the operation could be made more thorough in any other way, as each wound surface undergoes two thorough cauterizations. While the operation as described by me can hardly be called a Byrne operation as it embraces the complete removal of the uterus in every case, the name should, in my opinion, be retained because it carries out the Byrne principle of thorough and repeated cauterizations of the wound surfaces, and it is this principle that Byrne advocated so very persistently, rather than his own technique of operation.

PAPILLARY CYSTADENOMA OF THE BREAST.

BY

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It is with some hesitation that I offer you this paper. This disease, when I first encountered it, was the cause of much worry and anxiety, as I could neither make a diagnosis nor a prognosis. The literature at my disposal gave me no assistance. My friends knew nothing of the trouble. A most prominent surgeon of New York, now retired, could only advise removal of the mass to find out what it was.

It was not until my fourth case presented itself that I could get the patient's consent to remove the breast, and thus clear up the character of the trouble. During the last year a short remark in one of the text-books was shown me by J. L. Fewsmith, which spoke of a bloody discharge only. I have since found a similar note in a reprint kindly sent to me by Robert Abbé, entitled "Consideration of Mammary Cysts," etc., in which he speaks of a "coffee-like discharge from the nipple" and "a papillary ingrowth."

The life history of these cases, the diagnosis, prognosis, and treatment, is what I want to bring to your special attention, and is what I have failed to find described in literature. It appears that all the cases I have seen, except one, were beyond the middle of life. They came complaining of a more or less copious discharge from the nipple, varying in color from a very light yellowish pink to a dirty brown color. The latter presented itself in one case only. The disease may go on indefinitely, as shown in case No. 2, and thus the greater part of the breast became involved. This case was under observation for twelve years.

The patient herself never notices the tumor in the earlier stages, which an examination, however, shows is always present.

Spontaneous recovery cannot be excluded, as shown by Cases 1 and 2. In Case 3 the discharge continued for five years, and since

six years nothing has been seen of the trouble, except a little scar-like nodule to one side of the nipple.

It seems that no station in life is exempt. I have seen it in the married and the single, the white and the colored, the sterile and the fruitful. The symptom which brings the patient to us is an annoying transparent yellowish pink, or even dark bloody, discharge from the nipple. She is not aware of any tumor. On palpation, however, an elongated mass can be made out running in

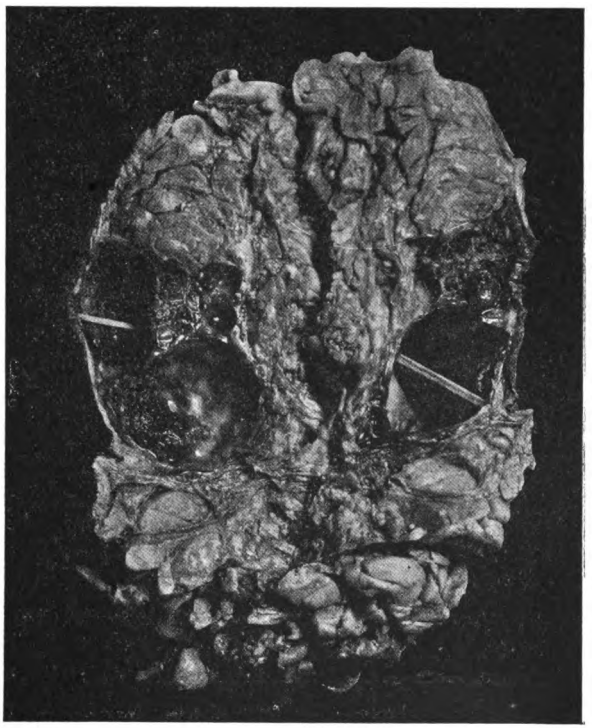

Fig. 1.—Case II. Section Through the Whole Breast.

the radius of the breast and starting a little away from the nipple. It is not sensitive, nor does the patient ever have any pain.

The discharge is often sufficient to soil three or four small handkerchiefs a day.

The pathology of the case is very simple and definite. The discharge is of a serous or bloody character, containing red blood corpuscles, leucocytes, and little fatty cell detritus, as shown by numerous small, black spots.

The tumor consists of a papillary adenomatous mass, usually single, but sometimes multinodular, which protrudes into the duct, dilating the duct. By retention of some of the fluid the duct becomes cystic in character. The diagnosis is easily made by the appearance of the fluid and the presence of an elongated mass of greater or less size. The prognosis is good, as malignancy can be positively excluded.

As to treatment, I should say that while an operation is not imperative, it is a sure cure. Since two of my cases got well without any treatment, however, one cannot urge any operation. In all

Fig. 2.—Case II. Papillomatous Cyst Wall.

cases operated on I have recommended removal of the whole breast, as I did not know the true character of the disease. It will probably remain the best treatment in the woman who is nearing the end of the child-bearing period. A trial to excise the mass would not likely result in much benefit, since it would cut across so many milk ducts. Deep incision and curettage with drainage might result more favorably.

CASE I.—Mrs. D., aged 47, widow, mother of five children, in robust health, was seen in June, 1880. She had just passed the menopause, when she noticed a serous discharge from the nipple, which was intermittent to such an extent that she took it to be a

vicarious menstruation. A very small mass in the left breast, near the nipple, could be made out. In about a year the discharge ceased entirely, and she lived until August, 1901, dying of chronic nephritis.

CASE II.—Mrs. E. G., colored, domestic, married, no children, was sent by her mistress in May, 1893, because of a discharge from the left breast. The woman was nearly forty-three years old, menstruated regularly, and was in good general health. Several years previously removed a large, bleeding fibropolypus from the uterus. There was a discharge from the left breast, copious enough during

Fig. 3.—Case II. More Advanced Papillomatous Degeneration of Cyst Wall

the day, to produce several spots, as large as a silver dollar, in a handkerchief. Menstruation had no effect on the discharge. The discharge was a yellowish, transparent fluid, which, under the microscope, showed a few red blood corpuscles and leucocytes and some small black granular bodies, probably broken-down cells. An oblong mass about 2 cm. in diameter and 1 cm. wide was discovered running from a little beyond the nipple inwardly. Gentle pressure on this mass showed that the discharge came from that source.

I saw her three or four times during the next two years and

then lost sight of her until June, 1900. The mass had grown somewhat larger and the discharge more copious. She occasionally presented herself, and in 1903 it was noticed that the tumor had become multinodular, with a greatly increased quantity of flow from the nipple. These masses had a doughy and slightly fluctuating feeling. On March 13, 1905, the breast was removed.

This specimen shows the condition remarkably well, as do also the microphotograph and schematic drawings kindly made by Dr. Teeter.

The tumor proved to be a papillary cystadenoma of the breast.

CASE III.—Mrs. R., German Jewess, aged 45 years, was first seen in May, 1894. She was of a healthy family, menstruated regularly and painlessly, and was mother of two girls, the youngest sixteen years old. She nursed both girls the usual length of time. Her general health was good and she appeared well nourished. She complained of a discharge from the nipple, which came on a month ago, and was continuous. It was more copious during the day than at night and while exercising. It left a yellowish brown stain on her clothing. Menstruation had no effect on the discharge. Upon examination, a small, flat mass was felt extending from the nipple outward and upwards for about 2 cm. and was ½ cm. wide. Careful examination showed that the serous discharge came from this small tumor, as gentle pressure on it would cause a drop to ooze from the nipple, while pressure on any other location would not have a similar effect. The discharge was of a clear, yellowish pink character, and under the microscope showed an occasional red blood corpuscle and still fewer leucocytes, and now and then black, granular bodies, smaller than red-blood corpuscles. This was found in all the specimens examined hereafter.

There was not the slightest pain, nor was there any during the next five years. She was very much averse to the use of the knife, and once consulted a prominent surgeon (now retired) of New York, who gave no opinion, but advised that the tumor be laid open for diagnosis' sake. There was never any operation, however, and various applications were made, only to keep track of the patient. Once in two or three months she would present herself, always fearing malignancy. The discharge never changed in any particular, though she soon passed through the menopause. In 1898 there was a marked decrease in the discharge, and in another year it ceased entirely. During the last six years she remained well, and all that can be felt is a longish, cordlike mass running in

an upward and outward direction. No anatomical diagnosis was ever made, as removal was not permitted.

CASE IV.—Mrs. M., 35 years old and married, mother of several children, all of whom were nursed, was seen in October, 1898, because of a discharge from the right breast, which had lasted for several months. She was a healthy woman, menstruated regularly and painlessly. This function had no effect on the discharge from the nipple. The discharge showed the same condition ex-

Fig. 4.—Case V. *c*, Cyst Wall. Papilloma Below.

actly, both macroscopically and microscopically as the foregoing cases.

Pressure upon a small nodule alongside the breast produced the fluid in several drops. I never saw her again, but was told that the breast was removed, and that she remained well. An examination of the specimen was not made.

CASE V.—Mrs. B. was sent by Dr. Pierson, of Roselle, N. J., in May, 1902, for a watery yellowish discharge from the nipple of the left breast. She was married, had no children, and was

about thirty-eight years old. This discharge, which was of a clear yellowish pink character, had existed for some months and gave her a great deal of annoyance because of the great quantity. There was rather a large mass to the outer side of the nipple, measuring 2 x 3 cm. Pressure on this mass produced the discharge quite copiously, which became quite bloody when the manipulation was increased in force. Menstruation had no effect either on the discharge or on the mass. The mass appeared semi-fluctuating and rather doughy in character.

The discharge under the microscope showed many red-blood corpuscles, leukocytes, and small black granular matter.

The patient readily consented to have the breast removed, and I was glad to do it, so as to clear up the nature of this difficulty.

The breast was removed, and Dr. F. W. Bailey, of Elizabeth, kindly examined it for me. He reported it to be a papillary cystadenoma developing in one of the milk ducts.

The microphotograph taken by Dr. Teeter shows the microscopic character of the case very well.

CASE VI.—Mrs. W. was sent by Dr. J. G. Wilson, of Perth Amboy, in September, 1902, because of a serous watery discharge from the nipple, which had continued for some months, and did not respond to any treatment. She had a tumor alongside the nipple of the left breast as large as a filbert and slightly prominent. Pressure on the tumor produced a large amount of yellowish pink serous fluid, which under the microscope showed blood corpuscles, leukocytes, and black granular bodies. The diagnosis of a papillary cystadenoma was made and Dr. Wilson removed the breast, which he kindly sent to me for examination. Dr. F. W. Bailey showed it to be a papillary cystadenoma.

CASE VII.—Mrs. S., of Elizabeth, N. J., married, aged 52 years, mother of several children, was sent by Dr. D. L. Wallace, in September, 1902, with a tumor in the breast. Since five months she noticed a small tumor in the left breast, near the nipple, which gave her no discomfort. Since two weeks she had a copious discharge of thin, yellowish water from the nipple, which soiled a piece of gauze as large as the hand.

Physical examination showed a small, elongated tumor about 1½ cm. in length and radiating upward and inward from the nipple. Pressure from without towards the nipple produced several drops of clear serous yellowish liquid. Under the microscope the fluid showed a few leukocytes, red blood corpuscles, and many small, black granular bodies.

Diagnosis: Papillary cystadenoma of the breast.

Operation, October 4, 1902. The whole breast was removed and the microscope proved the diagnosis.

CASE VIII.—Sister S. A., single, teacher, 30 years old, presented herself on October 23, 1904, with a copious, clear, yellowish discharge from the left breast which had lasted some months. This was constant and gave her much annoyance. She desired immediate removal of the cause.

The discharge contained a very few blood corpuscles, leukocytes, and some granular matter. After careful examination a tumor as large as a bean was found to the left of the nipple. Pressure from without produced a large drop of clear, thin, yellowish pink watery discharge.

Diagnosis: Papillary cystadenoma, which was proven by the specimen when it was removed on October 28.

DISCUSSION.

DR. MILES F. PORTER, Fort Wayne.—I have listened to the paper just read with a good deal of interest. Cystadenomata of the ovaries and of other organs are prone to become malignant, and whether a given one is malignant or not, in my opinion, no man yet lives who can tell, nor can one tell at the time of operation whether or not there is going to be a recurrence. Some of these tumors are pronounced by microscopists to be non-malignant, yet they return. Others are pronounced by microscopists to be malignant and do not return. The practical lesson is, these cystadenomata, wherever found, should be treated as malignant tumors and removed.

DR. JOSEPH PRICE, Philadelphia.—Tumors of the breast of a suspicious nature are often disastrous if they are allowed to go on unoperated. I have operated on several cases of tumor of the breast with gratifying results. I recall one woman from whom I removed both breasts seventeen years ago, and she is living, has rosy cheeks, and is a very prominent society woman to-day. I have had no occasion to regret the removal of both breasts in other instances of tumors of a suspicious nature. It does not trouble me in the least because those women have not borne children. I do not think they would have borne children if they had not been operated. If they had, they would do what other women now so frequently do—namely, bring their children up on artificial food.

DR. MILES F. PORTER, Fort Wayne.—My reason for saying what I did in my previous remarks is because in the last

few months I have had one of these cases. When I first saw the woman she had a bad-looking breast. She was pregnant at the time. She had a cyst of the breast which was tapped, supposing it to be an innocent one. After the birth of the child there was noticed some involvement of the axillary glands. I removed the breast and cleaned out the axilla, and I shall be very much surprised if she does not return in six months or a year with a recurrence of the trouble. This growth was pronounced malignant by two microscopists and by two non-malignant.

DR. GUENTHER (closing the discussion for Dr. Ill).—I do not think there can be any question whatever as to malignancy in this case, because, in the first place, these patients are not aware that they have a tumor; or, if they have a tumor, as a usual thing it is very small. In the second place, there is no involvement of any of the glands, particularly the axillary glands. The only symptom they complain of and for which they seek medical advice, is a discharge from the nipple. That is the history of such cases. We do not get any malignant disease of the breast. These patients get a yellowish or brownish discharge from the nipple, and this causes them to seek medical advice. They do not consult a doctor for a tumor or pain in the breast, nor for any swelling of the axillary glands, because there is no involvement of those glands. The history and symptoms are sufficient to exclude malignancy. Furthermore, the history of some of these cases shows that if they are not operated upon, they go on and eventually get well after a number of years.

REMARKS ON THE INDICATIONS FOR HYSTERECTOMY IN ACUTE PUERPERAL SEPTICEMIA.

BY

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THE question of hysterectomy for acute puerperal septicemia is as yet far from settled, and it would be quite illogical to propose this interference in all cases of serious infection. However, the greatest difficulty appears to be to exactly determine at just what time during the progress of the disease the operation should be undertaken. In order to arrive at some conclusion, clinical examination, as well as laboratory methods, must be carefully considered. Although much discord reigns among surgeons, as becomes evident from the discussions on this topic which have occurred at the American Medical Association in 1895, at the Surgical Society of Paris in 1901, the Obstetrical Society of Paris in the same year, the discussion of the International Congress of Gynecology, held at Rome, in 1902, and the International Medical Congress held at Madrid in 1903, yet it is to be hoped that in the near future the question may be settled, and in this paper I shall merely consider whether or not this operation is indicated in cases of generalized infection.

In order that hysterectomy may become a legitimate operation in acute puerperal septicemia, it is evident that the uterus must be the seat of marked lesions and form a serious danger for the organism. From this point of view, one may divide the pathology of these puerperal lesions into three groups, namely: (1) The uterus alone presents marked lesions, and in these cases hysterectomy would seem to be distinctly indicated. The operation may also be rendered more legitimate by the coexistence of other lesions, such as rupture of the uterus, adherent placenta, which it is impossible to remove, fibromata or carcinoma. (2) Cases where the uterus presents infectious lesions, but where other lesions exist in the various viscera, such as the spleen or lung. Under these circumstances the

advisability of the operation is extremely questionable and by many authorities it is absolutely contraindicated. (3) Those cases where the uterus has only served as an entrance to the infection and is free from any lesion. Here it becomes at once evident that hysterectomy would be worthless.

Now, what is the ordinary condition of the uteri found in generalized puerperal septicemia? Tissier, an ardent enemy of this operation in cases of puerperal septicemia, made the remark before the Obstetrical Society of Paris in 1903 that many operators who were not familiar with obstetrics possessed a very inexact idea of the macroscopical lesions found in women dying of puerperal infection, and that they were apparently ignorant of the usual apparent integrity of the uterus. He also stated that those infrequent examples of abscess and gangrene of the uterus were published while the ordinary cases were not mentioned, so that exceptional lesions of the uterus came to be considered as ordinary and were used as a basis for operators too much inclined to interfere. To back up his assertions, he showed five uteri removed at autopsy during the summer of 1902 which were free from any apparent lesion. Without doubt such cases exist, but that they represent the rule I cannot admit. In point of fact, the question must be considered more closely, and it will be found that two conditions are met with, namely one where the uterus is macroscopically diseased, the second where macroscopically it is free from any lesion. The first group, namely where macroscopical lesions are present, represents the classical enlarged, soft and friable uterus, having, as Hirst has aptly expressed it, the consistency of cheese. These uteri are easily torn, the veins are thrombosed and on section pus makes its escape from a thousand small lymphatic openings. Mouchotte has collected, in his very excellent thesis, numerous anatomical documents relative to uteri removed by hysterectomy and they would seem to prove that, anatomically, at least, the operation was not a useless proceeding. Leopold removed a uterus presenting metrophlebitis; Rossemburg, a uterus containing a placenta which was extremely adherent and infiltrated with pus; Baldy, a large soft uterus riddled with small abscesses; Penrose, a uterus containing abscesses in the posterior aspect of the left cornu with adherent placental tissue and a generalized cellulitis; Beaussenat, a uterus transformed into a purulent sponge; Stinson, a uterus with a tubouterine abscess on the left side;

Mackenrodt, a uterus with generalized septic endometritis and an abscess of the anterior lip of the cervix; Prochownick, a uterus containing in its parenchyma numerous small abscesses; Treub, a very friable uterus with an abscess in its wall; Bouilly, a large, soft uterus easily torn, having a grayish bloody look, fearfully fetid and containing very adherent strips of necrobiotic placenta; Jorfida, a uterus presenting cellular infiltration throughout its entire parenchyma; Grandin, a uterus completely lined with greenish false membrane, the veins being extremely large and filled with clots; Faure, a uterus containing a bit of fetid placenta, lodged in the left cornu; Faure and Mouchotte, a uterus containing an abscess the size of a walnut, divided into several compartments, filled with a concrete pus, while on section several small abscesses were found scattered through the parenchyma; Mauclaire, an enormous, soft, uterus, transformed into a true spongy mass filled with pus. I have myself removed two uteri, one, three days after labor, the other on the eleventh day, the walls of which were so extensively infiltrated by pus that the organs were white when removed.

The foregoing cases are, to say the least, extremely suggestive, and show, in the first place, that uterine abscess and purulent infiltration are, in reality, far more frequent than is generally admitted and than clinical observation would lead one to suppose. They also show that a uterus transformed into a sponge of pus is not, unfortunately, an anatomic entity merely known to the older writers, because modern surgeons and obstetricians still meet with them. What I have said so far has related exclusively to uterine lesions, but I would also point out that very frequently extrauterine lesions also exist, such as pelvic cellulitis, purulent infiltration of the broad ligaments, suppurative salpingitis, pelvic peritonitis, etc., all lesions whose nature alone formally indicates surgical interference. The simple uterine lesions are far more frequent, but there are others which belong to particular clinical types, such as gangrene or abscess of the uterus. In the former the local lesions are absolutely characteristic, and Beckmann has given an excellent description of the process.

Upon section the mucosa presents two layers, the external being grayish white in color, recalling compact muscular tissue, the internal layer being dark red and in structure very lax and perforated with numerous cavities. These masses are separated from the healthy tissue by a very distinct line of demarcation, yellow in color, while the necrosed part projects above the

surrounding tissues. The rete of the mucosa is the seat of purulent endometritis; it appears uneven, yellowish in color, and covered with purulent exudates. The uterine muscle is edematous, soft, and presents all the characteristics of interstitial metritis. The uterine peritoneum is thickened and opaque, while large, dilated vessels are seen lying over the surface of the organ, which may also present membranous exudate. Consequently, in cases of uterine gangrene the lesions in the organ itself are more evident than any others. There may be a gangrenous process limited to a certain part of the uterus, as Maygrier has shown in two very marked cases. Both of the specimens came from women dying from post-abortum infection. The first uterus presented a large loss of substance in the fundus, extending almost from one tube to the other; its borders were fringed and irregular, and appeared purulent. The second uterus was quite similar, being also gangrenous at the fundus, where the muscular layer was almost entirely destroyed, the uterine wall being represented by only a thin blackish peritoneum, which was pierced by several little holes, while a large perforation gave communication between the uterine and peritoneal cavities. In both instances the remainder of the organ was perfectly intact. The clinical history of both cases established the fact that the lesions were gangrenous, and not due to perforations arising during the abortion. Such instances are of the greatest interest from our point of view, because they offer a precise anatomical indication for the performance of hysterectomy.

In considering uterine abscess I do not intend to study purulent infiltration of the organ, but large abscesses isolated one from the other, or even single ones. Such abscesses are found usually near the orifice of the tube, or on the side of the uterus in the neighborhood of the large lymphatic vessels. In size they vary greatly, their walls being formed by the uterine muscle, and the peritoneum covering the abscess is thickened and hyperemic. The lymphatic vessels all around are dilated and filled with pus. The entire uterus is increased in size on account of the hyperemia and edema. From this description it follows that there are undoubted cases of uterine abscess just as there are undoubted cases of uterine gangrene, and they offer a very distinct and anatomic indication for surgical interference.

There are cases where the uterus presents no macroscopical lesion, but where it would be risky to declare the organ healthy unless carefully studied microscopically. It is absolutely neces-

sary to make a bacteriological examination of the uterine parenchyma before making a diagnosis of the existence or absence of local infectious lesions, and when this is done one will often find that uteri which appear perfectly free from any lesion are in reality filled with bacteria quite capable of attacking the entire organism. In point of fact, many authorities have, under these circumstances, found bacteria throughout the entire thickness of the uterine parenchyma, and Prochownick removed a uterus which was absolutely infiltrated with colonies of streptococcus. In another case this same authority obtained numerous cocci in the liquid gathered by squeezing the uterine muscle. Jorfida found cocci and staphylococci throughout the entire muscle, as well as in the lymph spaces, while Grandin examined a uterus whose parenchyma was riddled with numerous colonies, the streptococcus predominating. Mouchotte has examined numerous uteri removed at autopsy from women dying from puerperal infection. His first case presented a uterus perfectly healthy in appearance, but throughout its entire thickness, as well as in the lymphatics, and especially the veins, the streptococcus and bacillus perfringens were found. The second case showed a uterus whose veins and entire parenchyma were literally packed with the bacillus perfringens, and the same organism was found in all the cellular interstices, in which it had even developed gas bubbles. In the third case the uterus contained in its entire thickness short chains which in all probability were streptococci. In the fourth case the uterus looked absolutely normal, and its cavity was empty and smooth. Section showed the presence of cocci in a pure state and in great numbers. In the fifth case the uterus was absolutely empty, but section showed a few cocci and bacilli staining by Gram's method, in the parenchyma. All these specimens were obtained postmortem by hysterectomy performed from one to two hours after death, and for this reason it cannot be said that he was dealing with postmortem microbic invasion.

I can bring forward still more positive facts which are above criticism, namely, two uteri coming from women in whom hysterectomy was done for puerperal infection, and which were examined by Jeannin immediately after removal. In the first case there was postpartum infection with generalized septicemia; total abdominal hysterectomy was done on the thirteenth day by Bazy, and the patient died on the forty-fourth day. The uterus was large, but firm, and appeared absolutely healthy. Bits of

uterine tissue were immediately removed, both from the midst of the parenchyma and under the peritoneum, and placed in broth in the incubator. At the end of twelve hours the tubes had given growth to numerous chains of streptococcus pyogenes. In the second case there was intrauterine fetal putrefaction with physometra and serious puerperal infection. Supravaginal hysterectomy on the sixth day; patient recovered. The uterus was enlarged and soft, but appeared normal. The endometrium was perfectly smooth, and immediately after removal of the organ blood was taken from the uterine muscle and under the peritoneum. Examined on a cover slip this blood revealed a very rich microbic flora, similar to that which was found in the amniotic fluid of the patient. Cultures developed active colonies of bacillus perfringens and streptococcus. Jeannin points out that what was most striking in this case was the extreme abundance of the bacteria and the rapidity of their penetration to the peritoneum.

From what has been said, we may reasonably conclude that during puerperal septicemia the uterus is frequently the seat of very important and frequently extensive lesions. The most characteristic points of these lesions are: purulent infiltration, small and multiple, or isolated and large abscesses, patches of necrobiosis or gangrene more or less generalized. When a uterus is healthy in appearance it may still be an absolute microbic sponge; not only streptococci, but also the principal aërobic and anaërobic pathogenic organisms, may occupy the entire parenchyma. From the anatomical standpoint the removal of such an organ can hardly be considered as an illogical surgical procedure.

It must be admitted from the start that the study of the clinical signs furnished in these cases has little weight as far as the indication for removal of the uterus is concerned, especially when each symptom is taken separately. This has been made particularly evident by the discussions which have taken place before the representative societies mentioned at the beginning of this paper. Subinvolution is an ordinary condition found in puerperal infection, and merely indicates that the uterine cavity is not empty, and another condition accompanying this is an abnormal and persistent patency of the cervix. The temperature chart certainly offers many indications as far as the intensity of the infection is concerned, but it is also quite certain that this alone is far from being sufficient to indicate whether or not hysterectomy should be undertaken. Every surgeon has seen

numerous instances where the temperature has been 40° C., or higher, and, nevertheless, the patients have recovered. Then, again there are numerous instances where death results even when the temperature has not gone above 38° C. These cases appear to be due to hepatic infection with the colon bacillus. The condition of the pulse also indicates the serious condition of the patient, especially when the rate is far higher than the temperature curve would require; and when the two curves diverge, the temperature becoming lower and the pulse higher, the prognosis is exceedingly bad, and this sign may be one of the most important.

The general condition of the patient is also of great importance, but it may also lead one into error. I would, however, insist upon two particular forms of infection, especially so because it is in these cases that hysterectomy has been particularly advocated. I refer to gangrene of the uterus and abscess of the walls of the organ. The diagnosis of uterine gangrene is of the highest importance, because this type of infection is one of the least discussed as far as the indications for hysterectomy are concerned. Beckmann, in 1900, was able to collect 40 cases of dissecting metritis. In these, labor had usually been long, and in more than 50 per cent. of the cases all kinds of surgical interference had been resorted to. Many of the patients gave evident signs of some other general infection, such as tuberculosis, or syphilis, which rendered them constitutionally less resistant. The temperature rises three or four days after delivery, varying between 38° and 40° C., and is of a slightly remittent type. The pulse rate increases and is always far out of proportion to the temperature curve. From the commencement the general condition is alarming. There are chills and headache. Involution is delayed, and during the first days the fundus uteri is even higher in the abdomen than immediately after labor, while the cervix is very high up in the vagina.

These symptoms are characteristic, and may be explained by the local edema resulting from disturbances in the circulation. The lochia rapidly becomes fetid and is brownish black in color, spotting the linen with a stain having a dark center and light-colored borders, a sign, by the way, which I have invariably found indicated a septic process. The quantity is large, and increases each day, while the odor is particularly offensive, recalling that of pulmonary gangrene. The discharge reaches its greatest amount at about the third week, and if one presses on the abdomen a flood of purulent liquid may be expressed from

the genitalia, occasionally accompanied by fetid gas. The lochia brings down bits of uterine mucosa, which, when they are present, settle the diagnosis.

These strips vary extremely in size and shape; in some instances they form a perfect mould of the uterine cavity; in thickness they vary from 2 to 5 centimeters. Their external aspect is yellow, often covered with exudate or false membranes studded with brown spots. The internal aspect is dark brown, or even black. The elimination of the membrane brings about a fall in the temperature, but when it goes up afterward this is due to the fact that more mucosa is to be eliminated. From the fifth to the seventh day one may also detect a swelling of the uterine walls, which have become soft and relaxed and project into the uterine cavity. This condition is readily discovered by intrauterine examination, which can be easily accomplished on account of the soft, gaping cervix. Edema of the perineum and posterior portions of the labia, due to thrombosis of the pelvic veins, is not always present. This clinical picture is quite characteristic, and the great majority of writers consider that it is a formal indication for hysterectomy. However, the prognosis is far from having the gravity that one might suppose, and Beckmann's statistics show only 11 deaths out of 40 cases, making the mortality 27.5 per cent. Although one might hesitate to undertake hysterectomy as long as uterine gangrene undergoes its evolution without complications, it is evident that as soon as any symptoms of uterine perforation arise, the surgeon is obliged to act.

Uterine abscess is rare and in 1901 von Franqué gave an excellent description and collected 15 cases. The abscess is the result of a lymphangitic metritis. It is preceded by fever indicating puerperal infection, and sometimes the temperature will fall after the initial rise, until the appearance of the abscess, which manifests its presence by a severe chill and a new rise in temperature. When once the abscess has formed the temperature curve becomes irregular and the same may be said of the pulse. Chills recur and severe abdominal pains are complained of, accompanied with rectal and vesical tenesmus. The uterus is large and tender, while the lochia is fetid. A more or less circumscribed tumefaction, which is apt to be diagnosticated as a lesion of the adnexa, may occasionally be made out on one of the sides of the uterus. Picqué observed a case in which there was an isolated abscess situated in the right side of the uterus and com-

municating with the cavity of the cervix by quite a large opening, and he points out as a differential diagnostic sign the very marked gaping of the cervix. In another case, Budin was able to make a diagnosis by an intrauterine digital examination, which allowed him to recognize an abscess situated in the right wall of the organ. We have here constantly a clinical modality of puerperal infection which may be diagnosticated in some cases, and when this has been done radical interference is immediately indicated, because if not remedied at once the prognosis is extremely bad, von Franqué having estimated the mortality at 75 per cent. This is due to rupture of the abscess into the peritoneum, and consequently hysterectomy appears to be the only rational proceeding. The same may be said in cases of multiple abscesses.

We now come to the question of the propriety of hysterectomy in cases of infection supposed to be due to a single pyogenic organism. It is quite natural to consider the question of hysterectomy upon the ground of the nature of the infection and in order to discover the organism giving rise to the process the best and simplest procedure is to study the contents of the uterus. This has been the subject of much research. We will suppose that the examination of a given case has revealed the fact that a single microorganism is the cause, and the question at once arises in what cases should surgical interference be adopted? Reynier admits three bacteriological varieties of puerperal septicemia, namely, *saprophytic* infection, in which case the uterus ordinarily contains bits of placenta, so that curettage and intrauterine irrigations give excellent results; *gonococcic* infection, in which case curettage is contraindicated, the best treatment being frequently repeated intrauterine irrigations; *streptococcic* infection, which represents the great puerperal septicemia, the one which has always been feared. In the serious forms of this process Reynier doubts whether hysterectomy will have any great influence over the infection, and he comes to the conclusion that it is better to abstain from all radical interference, no matter what may be the type of microorganism giving rise to it.

Personally, I believe that the bacteriological examination to ascertain the nature of the pyogenic organism giving rise to the septicemia is hardly of any value clinically, because it necessitates the inoculation of animals and the growing of cultures in order to determine the exact nature of the microbe,

and this always requires a delay of at least twenty-four to forty-eight hours, or even more, which may be the means of losing valuable time. In reality I believe that the problem is far more complex, because in most cases the infection is due to more than one type of organism, the larger number being the result of polymicrobic infection. This is a conclusion which is absolutely verified by all modern researches. Du Bouchet found this condition four times out of five, Hallé four times out of four, Brindeau and Mace two times out of three, Jeannin seventeen out of eighteen, and Mouchotte fourteen out of sixteen. Thus we find out of 46 cases examined by the above-mentioned authorities there was a polymicrobic infection in 41. On the other hand, it does not appear that the gravity of each infection results from the particular combination of organisms present. Mouchotte collected various cases of post-abortum infection with the following results: out of 100 cases of post-abortum infection microbic symbiosis was present 94 times, and out of the cases where this symbiosis existed the prognosis was good in more than two-thirds. In other words, out of 100 cases the patients recovered in 78, death occurring in 22. From this it readily becomes evident that the prognosis of puerperal septicemia cannot be made merely by the presence of such or such an intrauterine organism, nor by the presence of a microbic symbiosis. Bacteriological examination furnishes no indication for hysterectomy.

In other than those cases where a rupture or perforation of the uterus exists, there can never be a question of performing hysterectomy at once in a case of puerperal septicemia. One should always resort to the well-known minor methods. It is only after all these measures have failed that the question of removing the uterus will arise. If, after careful intrauterine treatment the infection continues its evolution, it at once becomes evident that the treatment has been insufficient. Time, however, presses, and one cannot wait several days in order to ascertain what is going to happen, because it will then be too late to attain any result from a radical operation. It is necessary to decide quickly within the next two days, and this is of very great clinical difficulty. At any rate one may be quite right in delaying radical operation and continuing intrauterine operations if, after the first curettage, there is an improvement in the general condition, a disappearance of the fetidity of the lochia, uterine regression and closure of the cervix. The tem-

perature curve and pulse should be attentively watched throughout, and in those cases where the fall is permanent after curettement, it is evident that this operation has been sufficient. There then are those cases in which the chart shows an elevation of the temperature after operation, under which circumstances one of two conditions will be observed: The first is where there is a progressive decrease, in other words, lysis, and here there is every reason to hope that it will not rise again. Should it do so, it is symptomatic of some metastatic complication. In the second case the temperature continues to rise, and, although this may be only temporary, some doubt should be allowed as to the efficacy of the curettage. It is in just these cases that the question of the advisability of hysterectomy may be entertained. It is in these uncertain cases that a blood count is of extreme importance, because when curettage is sufficient the polynuclear leucocytosis diminishes and the eosinophiles appear. When this operation is insufficient the polynuclear leucocytosis persists and eosinophilia is absent, as has been clinically demonstrated by Mouchotte.

The presence of some microorganism in the blood has been considered by some as an indication or a contraindication to hysterectomy, and in the first place it is necessary to determine the prognostic value of this bacteriemia. Petruschky was one of the first to consider this question, and his researches, undertaken in 1894, showed that the presence of the streptococcus in the blood did not necessarily entail a bad prognosis any more than the absence of microorganisms indicated a favorable prognosis. Out of fourteen cases which he examined, organisms were found nine times, once the staphylococcus and eight times the streptococcus. Among the latter three patients died, and among those who recovered the organism revealed an extreme virulence. In the five cases where the result was negative there was one case of generalized streptococcic infection proven by autopsy. In 1899, Prochownick solved the question in a very simple way, namely, that all women in whom there was a positive result died, and in all those in whom it was negative recovery resulted, no matter how serious were the symptoms. These conclusions, which are in direct opposition to those arrived at by Petruschky, have since been found erroneous. Klein confirmed the conclusions of the former authority, while Queirel has reported two cases of women who recovered in spite of the presence of streptococci in the blood. Bluysen has published two cases in which blood examination

showed the presence of streptococci in a pure state, and both patients recovered after curettage, and Carton and Mouchotte have recorded two instances where blood examination was negative and still both patients died from an anaërobic infection.

Lemierre (Thesis, Paris, 1904), has gone into the study very carefully. He examined the blood of fifteen patients afflicted with puerperal septicemia of varying degrees of severity and presenting different clinical pictures. Of these fifteen cases ten recovered and five died. Out of the ten favorable cases the streptococcus was found twice in the blood, and in the fatal cases the cultures were positive in three. This authority arrives at the conclusion that it is difficult to formulate any absolute prognosis from the findings of a blood examination in puerperal septicemia, and that the facts observed allow one to say only that streptococcemia is very frequent, almost always present in fatal cases; it may exist, although far less infrequently, in cases having a favorable outcome, and particularly in those which appear serious.

The very varying results obtained by investigators are due to numerous causes, in the first place to the fact that bacteria remain with difficulty in the blood, because, as is well known, living blood is a very poor culture medium, both on account of the oxygen it contains and the millions of phagocytes that travel through it. In the same patient blood taken after an interval of two hours may give very different results, being positive at one time and negative at another. Still more, in order that this examination shall have any value whatsoever a particular technique must be followed out. The greater number of investigators have merely contented themselves with inoculating blood obtained by pricking the finger, and have thus exposed themselves to a double chance for mistake. Living bacilli may be present on the integument of the patient, and the absence of a positive result may prove only that the quantity of blood taken was insufficient. Lemierre points out the necessity of removing quite a large quantity of blood, namely, from five to twenty cubic centimeters. The technique that he employed appears to me the best. The blood is removed by a syringe having a capacity of ten cubic centimeters and possessed of a steel needle whose capacity is from four to five cubic centimeters. After careful cutaneous disinfection, the needle is inserted into one of the veins of the elbow, which is rendered prominent by a ligature applied on the arm. By this means from ten to twenty cubic

centimeters of blood can be taken, and inoculated in flasks containing 500 cubic centimeters of peptonized broth for each five cubic centimeters of blood. The flasks are examined once in twenty-four hours.

Prochownick thought that, if there was a streptococcic focus in the uterus throwing a large number of bacteria into the blood at each chill, one should resort to a radical interference if the blood examination was positive. He, however, has not been copied by other authorities, because the larger number have considered the presence of this organism in the blood as an absolute contraindication. In point of fact it is difficult to conceive how surgery can help a woman whose organism is thoroughly invaded by infectious bacteria, and at the International Congress, held at Rome, in 1902, all the reporters refused to admit the indication given by Prochownick, while at the Congress at Madrid, Pinard also declared that at the present time bacteriology is powerless to furnish an indication for hysterectomy in acute puerperal septicemia. With that view I am in thorough accord.

From the standpoint of the hematological formula puerperal septicemia may be divided into three groups, namely, the mild, medium, and severe. The first is characterized by an increase in the number of red cells, a hyperleucocytosis oscillating around 18,000, but which may reach 28,000, the latter figure being only temporary, a polynuclear leucocytosis hardly exceeding 85 per cent., a decrease in the number of eosinophiles to about 1 per cent. In the medium types, hematology will show a hyperleucocytosis varying between 20,000 and 30,000, a polynuclear leucocytosis reaching or going beyond 90 per cent., the disappearance of the eosinophiles for several days and a greater abundance of the basophile elements. In the serious forms a very temporary increase in red cells takes place, and then these undergo a rapid and progressive diminution; there is a marked hyperleucocytosis, remaining above 25,000; the polynuclear leucocytosis is permanent and progressive, reaching from 90 to 95 per cent., with permanent disappearance of the eosinophiles and absence of basophile elements, plasma-cells and mast-cells. Among these serious types one should also include primary superacute septicemia, characterized by an absence of leucocytosis or even leucopenia, as is met with in all cases of infection with very rapid progress. Convalescence may be predicted when the leucocytosis and polynuclear leucocytosis decrease, with an increase in the number of red cells and mononuclear leucocytosis, with appearance of the eosinophile and basophile elements.

It is a difficult matter in the present state of our knowledge to come to any absolute decision, but it is very certain that blood examination is very serviceable to surgery in general. We may, however, formulate the following conclusions: (1) hysterectomy is contraindicated in two different conditions, namely, when one finds a hematological formula characterized by the absence of leucocytosis and by leucopenia, because in this case the organism has been so completely infected that any operation would only result disastrously. (2) When blood examination shows a moderate polynuclear leucocytosis varying from 85 to 90 per cent., with a slight leucocytosis, or one rapidly decreasing after having been momentarily high and with the presence of eosinophiles, it means that the prognosis is good and that intrauterine intervention will be sufficient to bring about the cure. Hysterectomy may possibly be indicated in two conditions: namely, when the infection is serious from the start and made evident by a very high leucocytosis, a polynuclear leucocytosis remaining at about 70 per cent., and complete and persistent absence of eosinophile and basophile elements; secondly, when the ordinary minor surgical procedures do not result in decrease in the leucocytosis and polynuclear leucocytosis. I would also point out that a lowering of the leucocytosis can be regarded as favorable only when the eosinophiles reappear in the blood. One should also recall that any visceral complication, such as metastatic abscess, phlebitis, etc., will give rise to a very rapid and marked increase in the leucocytosis.

From what has been said it would seem reasonable to conclude that there are certain cases of puerperal septicemia which might be saved by removal of the uterus, but, up to the present, there are no absolute clinical signs which will allow one to proceed with certainty. Taking all the symptoms carefully into consideration and combining this with a careful intrauterine examination may lead to an indication for surgical interference after all other therapeutic procedures have failed. Acute septicemia, on account of its rapid evolution, can never be benefited by hysterectomy, but, on the other hand, in cases of secondary septicemia with a slow evolution hysterectomy is indicated. No useful indications can be drawn from a bacteriological examination of the lochia or blood, but, on the other hand, a cytologic examination of the blood furnishes excellent prognostic indications of the infection under consideration.

DISCUSSION.

DR. MILES F. PORTER, Fort Wayne.—As this subject is a very important one, it strikes me that we ought to have a clear conception of the premises before we start the discussion. What do you mean by puerperal septicemia? Do you mean a bacteriemia? Do you mean a condition which is so aptly described by one of the old writers, when, referring to the patient, he says, "The life of all his blood is touched corruptibly"?

In such cases it would be as logical to talk about hysterectomy in typhoid fever as to talk about hysterectomy in the treatment of them. I take it, that hysterectomy is the treatment that should be instituted in cases of infection following abortion or labor, provided, as a result of that operation, we remove the cause of her illness. It is worse than nonsense to do such an operation unless the indications warrant it. Is there any way by which we can tell, in a given case, whether we are dealing with a local condition or not? In some cases, yes; in other cases, in my judgment, it is impossible to tell. And still, in a third class of cases we may have a combination of the two conditions—an infected uterus, which is the supply depot, and may lead to the death of the patient, as a result of what I should call sapiemia; that is to say, the uterus being infected, there are being, from time to time, taken into the individual's circulation, doses of a poison which will finally end fatally unless this supply depot is removed. It seems to me the important thing is to arrive at some means by which we can distinguish these cases, and until we can do that this question will have to remain as it is to-day, unsettled. If there is a local infection that can be removed by operation, it is demanded. On the other hand, unless the indications be quite clear to the individual who has the case in charge, operation ought not to be undertaken.

The point I want to make particularly is that, according to my understanding, progressive septicemia means literally a bacteriemia, and that in a pure case of progressive septicemia it is as illogical to talk about removing the uterus as it is to remove it in a case of typhoid fever.

I would like to hear an expression of opinion from the other members of the association as to what has been their observation regarding the diagnostic point that has been brought out, namely, that the peculiar staining of the napkins by the discharge may be significant of the pathological condition in the uterus. When I first heard of this I was inclined to think that there was nothing in it, but since I have discussed the subject with Dr. Cumston, I am inclined to think otherwise. His observation has been that when we have this peculiar sort of staining we have a local condition such as he has described. I confess I have not observed it, nor have I seen the matter

referred to in print, and if any of the members have made observations of this kind, I would like to know what they are.

DR. JOSEPH H. BRANHAM, Baltimore.—This is a very interesting subject. It seems to me that the author of the paper took a rather conservative position, and, perhaps, the correct one. I think the question, however, largely hinges on the point as to whether hysterectomy is most likely to save a woman's life in a case of severe infection of the uterus. Of course, septicemia is a condition that will give rise to a certain amount of discussion, and I suppose we mean by septicemia in this connection, some local infection in which the infective process is spread, so that the products of the bacteria, and also in many cases the bacteria themselves, are disseminated through the circulation, and in which the bacterial infection has invaded the living tissues of the organ. This condition is associated nearly always with many other symptoms, and even with other lesions which would not be included under this head.

I have operated on quite a number of cases of puerperal septicemia or puerperal infection, with invasion of the uterine tissue, and in which there was local gangrene, and perhaps it would be well to give to the association my views as to the best method of treatment of these cases.

I was called out of town in a hurry to see a case of puerperal infection. When I arrived at the house I found the woman in such a low condition that almost any surgeon here, who believes in operating on cases of puerperal septicemia, would have declined to operate in this case. She had an extremely rapid pulse, with high temperature, although the temperature was not as high as it had been. The pulse rate varied from 140 to 150, and the patient was very nearly dead. On examination I found a large, flabby uterus, with a purulent discharge coming from the cervix. Having some of my instruments with me, the physician who called me in consultation hurriedly gave a small amount of anesthetic, and in examining the uterus I found the placental site thoroughly infiltrated and gangrenous. Haste was necessary on account of the patient's condition. I scraped off the gangrenous material as best I could, flushed out the uterus, and after sponging with antiseptic material, I put in a good-sized, carefully arranged, wick drain of iodoform gauze, and opened up Douglas's cul-de-sac. I was able to map out very easily two large pus tubes. There was an ovarian abscess on the left side that was quite large, with probably a pint of pus in the pelvis. All of this was removed, and then the tubes, with the finger as a guide, were opened, and four large abscesses, the primary one and three others, were drained, followed by packing.

I operated some time ago and drained in which there was no distinct abscess, but there was a lot of thickened, semi-seropurulent material in Douglas's cul-de-sac. The infection, however, had penetrated through the uterus. I cleaned the uterus out thoroughly and the patient recovered.

If we could really tell in which cases to perform hysterectomy, we might give some of these patients a better chance for recovery but I think that nine times out of ten, if we thoroughly clean out the uterus, and drain the cul-de-sac, because in nearly every instance we will find something to drain, we will get fairly good results. If we do not find a distinct abscess, we will probably encounter a thickened serous fluid which contains infective material and which is helping to kill the patient.

DR. SAMUEL W. BANDLER, New York.—I wish to confine my remarks to the microscopical examination of three uteri that were removed, one by myself, and two by other surgeons, for septic infection. All three patients died. None of the three uteri looked externally very much diseased. In cutting open the lining membrane of one of the uteri, the uterus looked slightly gangrenously inflamed, but the important lesion was one of the uterine muscle. One uterus was quite large. In all of the three cases nothing was visible to the eye as regards abscess formation. The microscope, however, disclosed myriads of small miliary foci, as well as necrobiotic spots. In addition to that, in two of the cases an examination of the innermost part of the broad ligament attached to the uterus disclosed infective thrombi. Those infective thrombi might prevent the presence of bacteria in the blood, as determined by bacteriological examination, yet two or three days after the operation is done, these bacteria may invade the blood and kill the patient by a genuine septicemia. If it were possible, by bimanual or any other examination, to determine the presence of these small abscesses we could then decide which cases should be operated on and which should not.

These three cases are instructive, because it is hardly possible that any of these patients would have recovered without an operation, on account of these myriads of miliary pus foci which were found scattered through the uterine wall, and yet operation gave them the only chance. These foci were so small that they could not be discerned by the naked eye, but could be readily seen under the microscope. So the presence of pus-forming bacteria in the uterus and the presence of infective thrombi outside of the uterus are important factors to be considered in this operation.

It is quite important, too, to consider this matter and make a comparison with appendicitis. The appendix itself may not be gangrenously diseased, yet the veins in the mesoappendix may be thrombotically infected, and the patients may die subsequently from involvement of the liver. This is a point that directs our attention to the impossibility of exact examinations, as one never knows what is the microscopic condition in the uterine wall or just outside of it in septic infections.

As I have previously said, these three patients would have died without operation. Operation gave them the only chance.

DR. J. HENRY CARSTENS, Detroit.—A few years ago I opposed

emphatically the performance of hysterectomy in the class of cases under discussion, as I could not see that it did any good. If we take an operation such as this, which is attended with a mortality of 25 per cent., a good deal more than if we let the patients alone, that of itself is sufficient to condemn it. Take, for instance, young women who have had their first child, a condition from which we know that the vast majority will recover—at least seven out of eight—why should you remove their uteri simply because a few of them are going to die, and unsex them. I think it is an outrageous proposition, and for that reason I have in the past emphatically condemned this operation. I have not changed my opinion. I do not think this or any kind of operation will get rid of the infection. By the time you operate, there may be secondary deposits in the liver, arm, or leg, and the removal of the uterus does not do a particle of good. Why? Because other foci remain that are already developing. If you get such a patient very early, you may occasionally be justified in operating, but I would discourage advocating this operation, even by experts, because if it is done, every tyro will advocate it; he will remove uteri and will probably hasten the deaths of many of these patients. All things considered, I must say I discourage this operation, except in the rare cases.

The operation Dr. Bandler talks about is the correct one. If we have an abscess of the uterus to deal with, it is a different thing altogether. We should strive to increase the power of resistance of these patients.

Dr. A. Ernest Gallant, New York (by invitation).—I am not a member of your association, but Dr. Bandler has asked me to take part in this discussion, because he knows I was associated with a man who was the first in this country to remove the septic uterus for this purpose. It seems to me, in our efforts to study this subject from a scientific standpoint, we have lost sight of the practical point which will guide us in the majority of cases in determining which patients should or should not be subjected to hysterectomy. If we recall the histories of the patients who have died, we find that they seldom died before the thirtieth day; at least, that has been my experience. In other words, there is a prolonged sepsis which gives one plenty of time to make up his mind that he is dealing with something which is not temporary or transient.

Are there infections of the uterus which will respond quickly to local treatment? Those who advocate curettage and packing know very well that the uterus that will respond at all responds almost at once; the temperature goes down, and the patient gets well. But of the other varieties, I care not what bacteria may be there, where we have a spongy uterus from which you can squeeze pus (I am sorry I have not one with me, but have it in my museum), if we allow the patients in this condition to go on for three or four or six weeks, they die. Why is

it we passively permit such a condition to remain? Would we allow that condition to go on in any other part of the body? I maintain that when these patients with spongy uteri are allowed to go on for four or five weeks they are doomed to death, and it is a question if they do not all die after the second week without operation.

If we have one of these prolonged cases, with the uterus remaining soft and boggy, and the patient's temperature going up and down—101° to 102°, 103°, and 104°, it seems to me the only chance for that patient is to remove the uterus. If there are other foci of infection, they usually take care of themselves, if we remove the primary focus. If a man has an infection of his toe, you might see fit to take it off, but you certainly would not take off his head. If we stop the infection at the toe, naturally other foci of infection will take care of themselves. In a case of typhoid fever, for instance, we would not expect a man to die because he was suffering from poisoning of the intestines alone. As soon as the intestines recuperate, phagocytosis takes care of what is left; and, it seems to me, if we pay attention to this one question of *time* we may determine after a certain date that the patient is practically in a condition where she is going to die, and from that standpoint approach this subject more rationally.

Every method of investigation practically has proven faulty, we have little or nothing at the present time to guide us, and if we take it up from this standpoint, it may help us in deciding when hysterectomy is justifiable—*not en dernier ressort.*

Two patients seen in 1904 died, one on the thirty-third day, and the other on the forty-fourth day. I am happy to say, however, neither was under my care when she died; both women were seen in consultation, early in the disease.

DR. CARSTENS.—I wish to say, in reply to the remarks of the last speaker, that when these patients with puerperal infection go on for thirty-three or thirty-four days they do not, as a rule, die. Occasionally deaths occur, but ordinarily when they live for twenty-one days they nearly all recover. I have observed this in a number of such cases. I recall three patients who had puerperal sepsis; each one was sick for ten weeks, and all recovered, and not one of them had a hysterectomy performed.

It would be bad teaching to emanate from this association that hysterectomy is good treatment for puerperal sepsis. It is, just as Dr. Cumston has said, only in exceptional cases. When we have a patient with a spongy uterus, with puerperal sepsis, with no pain, the patient feeling almost perfectly well, you can introduce the finger into the vagina, squeeze the uterus by a bimanual examination, and yet the patient feels all right. If you remove the uterus of such a woman, what good is accomplished? The proposition is absurd, to my mind.

DR. CUMSTON (closing the discussion).—The principal point

I wanted to make in my paper was that at the present time there are no clinical signs, or laboratory findings, which will give us any rational indications for an operation in cases of puerperal sepsis. We may have the streptococcus in the blood, which is the very best sign of a generalized septicemia. Some of these patients get well when the streptococcus is in the blood, and others die from septicemia when it is not there. It would seem, all things considered, that at the present time, in cases of puerperal septicemia, where no evident localized lesion in the uterus can be detected by a carefully conducted intrauterine examination, these patients should be all treated by the ordinary and conservative methods.

ABDOMINAL HYSTERECTOMY FOR MULTIPLE FIBROIDS COMPLICATED BY PREGNANCY.

BY

J. H. CARSTENS, M.D.,

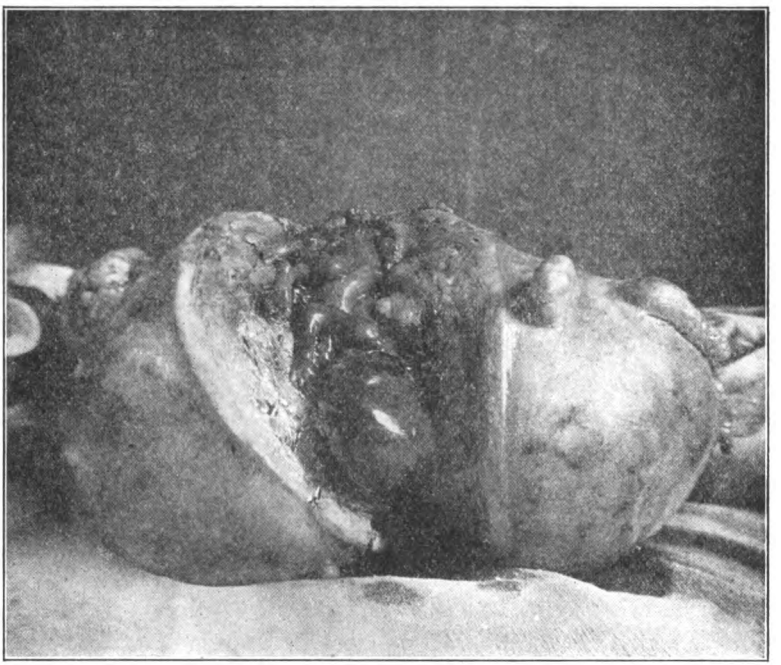
Detroit.

FIBROID tumors of the uterus are quite common and now frequently removed without much danger. I will not discuss the great necessity for removing them, of removing them promptly, or watching for general developments. This is out of the province of this paper. I simply want to report a case where I thought it was necessary to remove the growth promptly, on account of the suffering and great distress. The history of the case is as follows:

Mrs. F. B., aged 42; menstruation had appeared at twelve years of age, normal, but with some pain and rather scant when young. Later in life the dysmenorrhea ceased and the flow was rather profuse. Occasionally she had slight leucorrhea. She had always been well, no history of injury or of any abdominal inflammation; in fact, she was never sick, but the last four or five years has had some slight dyspepsia, though a fair appetite. She was inclined to constipation and occasionally took a cathartic. Her father is living at 84, her mother died at 73 of some tumors, did not know where located or what kind. She was married seven years ago and never pregnant. Four years ago she noticed a swelling in her abdomen on the left side in the region of the ovary. This was hard and somewhat movable. She paid no attention to it and it gradually increased in size, extending to the right. The growth did not trouble her, and as she was in good health she did nothing and consulted no physician about it. Menstruation was regular, but rather profuse until May 4. In June she had a slight show, and in July she had a more or less slight show for the whole month. Her abdomen now increased very rapidly in size, and she decided to consult a physician. He recognized the growth and urged an operation on account of the rapid increase in size, and brought her to Harper Hospital, where I

examined her and found a large hard tumor filling the pelvis up to the umbilicus. One large growth seemed to be on the left side, another in the cul-de-sac, and small ones could be detected in the lower abdomen. The cervix was shoved forward and high up, and so soft and patulous that I was quite sure she was pregnant. On examining the breasts I found the characteristic enlargement and decided she was pregnant.

It being impossible to deliver her if she went to term, I urged a prompt operation and prepared her for the same. August



CARSTENS.—Section of Uterus Showing Fetus.

15, 1905, I operated with the usual technic. There were only slight adhesions and the growth could be lifted out of the abdomen and the supravaginal operation quickly performed. A careful covering of the stump with peritoneum was made and the abdominal incision closed in layers with dry sterilized catgut. The whole operation took only eighteen minutes. She was given two pints of saline by rectum, as I usually do in all abdominal sections. She made an uninterrupted recovery, returning home the eighteenth day.

Examining the growth after the operation, it seemed like any other case of multiple fibroids. Opening the uterus we found a fetus of three months with membranes intact, a photograph of which I here present.

These cases are not very uncommon, still they are sufficiently rare to warrant us in reporting them. If we study their history a few points will strike us. In nearly all instances the woman is sterile, a growth develops, and after some years she becomes pregnant, which naturally makes one suspect that there was some abnormal condition of the uterus, perhaps, some malposition which prevented impregnation, but as the result of the growth, the womb was pulled up or pushed over, in one direction or another in such a way that the ova could pass into the uterus and pregnancy occur. This seems to me the correct explanation of the occurrence of pregnancy in sterile women, after the development of fibroid tumors.

In reference to general rules for this class of cases, I can simply reiterate what I have said on previous occasions: That while no definite rule can be laid down to govern all cases, yet in general:

1. Cases of fibroids complicated by pregnancy can be left alone if they are subperitoneal and located at the upper half of the uterus.

2. Fibroids located in the lower half of the uterus or in the broad ligament should be operated upon.

3. Fibroids adherent or complicated with other pelvic diseases should be removed by enucleation, or in some cases an abdominal hysterectomy should be performed.

DISCUSSION.

DR. JOSEPH H. BRANHAM, Baltimore.—Cases of uterine myomata are always of some special interest. I have had a case similar to the one just reported. The patient was the wife of a prominent physician of Baltimore, who had a child nearly twelve years before. She had been sterile for nearly twelve years, but had two children during her early married life. She was brought to me about four years ago by her husband, and on examination I found a single, large myomatous growth on the anterior part of the fundus uteri. I advised her husband that while I did not consider it absolutely necessary to operate at once, still I thought if the growth were increasing in size, as it probably was, she should be operated. She was not subjected

to an operation at this time. Nearly a year afterward he brought her again to me with a history that she had been irregular in her menstruation, and that the tumor was growing more rapidly.

On examination, a large tumor was discovered, as you can see by the photograph of it which I pass around, in the anterior and upper part of the uterus. The uterus itself with the fundus was turned downward, and the cervix upward and forward, where it could be reached with great difficulty; it was large, soft, swollen, and a diagnosis of pregnancy complicated by this tumor was made, and of course it was imperative to my mind at that time that an operation should be done at once. As to the position of the uterus, you can judge by these pictures. It was impossible to do any operation in the way of emptying the uterus, so the whole organ was removed. The operation was uneventful, except that the bladder was opened, which was closed without any trouble.

I have done quite a number of these operations, and that is the only accident I have ever had. I thought I was avoiding the bladder in this case, but it was pulled up to such a great extent that I made a nick in it before I noticed it. From this photograph you will see the uterus behind the tumor, with the cervix presenting. Looking at it from above, the fundus of the uterus is behind the large tumor, which occupied a very considerable portion of it, and here I show you a lateral view with the uterus open and the fetus turned out.

This patient made a very rapid recovery and has been perfectly well ever since. She should have been operated before she became pregnant, as then it would have been a simpler operation.

DR. FRANK D. THOMPSON, Fort Worth.—I had one of these cases in 1904 in which there was a large single fibroid in the lower part of the uterus. The case was reported and the report published in the *Buffalo Medical Journal* last fall. The woman was 33 years of age, had been married twelve years, but had never borne any children. The history in this case was that she was four and a-half months' pregnant. The fetus occupied the upper portion of the uterus, while the lower portion was filled with a fibroid as large as a fetal head at term. Under the circumstances, I believed the only way to save the life of the patient was to remove the uterus, and I did the operation while she was in good condition. The operation was attended with very little loss of blood. There was no accident or complication. She made a very prompt recovery.

DR. LOUIS FRANK, Louisville.—I think the treatment of pregnancy complicating fibroid tumors of the uterus, or the treatment of fibroids of the uterus as a complication of pregnancy, whatever you may choose to term it, is a most interesting subject, and one that deserves a little more discussion than the members are inclined to give it.

I have had a little experience in these cases, seeing them, at

all times, during the course of pregnancy, from the first month up to the time of delivery, and have had to deal with some of the complications that arise at this time. Possibly to me, then, the subject is of more interest.

I am very much opposed to advocating hysterectomy as a routine procedure, or as a procedure to be often advised without the greatest deliberation and consideration. My experience has been that a great many of these patients go on and deliver themselves normally, without any trouble, at the full term of gestation, and that no further trouble has ensued. Again, there are other patients in whom a good deal of trouble has been met with. I recall two cases seen comparatively recently in which there were sloughing fibroids. In one of them, a septic case, the fibroid was removed; in the other the tumor had sloughed almost entirely, and the woman recovered without any operation.

These cases may look very formidable when we first see them, and I have in mind a case I reported at one of our local societies, in which it was deemed most expedient to do a hysterectomy. The uterus was back in the pelvis, so that the presenting part of the child could not be felt. Within ten days or two weeks from this time the uterus had arisen; a great change had taken place, so that the head of the child could be felt presenting and pushing the tumor out of the pelvis, and the woman has thus far gone on without any trouble whatsoever.

I had occasion some years ago to deliver one woman three times, in whom a fibroid was present. This large fibroid presented on one side and caused malposition of the uterus. The presentation was a transverse one. This fibroid was not recognized at the first labor, but at the second one it was, and we believed at the time there was a second child in the uterus, but careful examination disclosed a fibroid tumor. The tumor apparently disappeared, and subsequent pregnancy ensued, with transverse presentation again. This woman has had three living children, and she is still living, with no evidence of the tumor present. Therefore I say I do not believe that this subject should be permitted to pass without some further discussion, because one would get the idea from Dr. Carstens's report and the report of Dr. Thompson that these cases should be subjected to hysterectomy, while I believe that this is a procedure that should not be advocated without the most careful consideration. I believe it is best to watch these cases carefully, and if we find complications are going to ensue, and delivery cannot take place, we might resort to Cesarean section, or to the Porro operation, or possibly a hysterectomy when the absolute necessity or indications arise.

DR. CARSTENS (closing the discussion).—I thought that perhaps someone would have discussed the question of bringing on premature labor in these cases. I did not mention it myself, as I wanted to make my paper as short as possible. However,

the question of bringing on labor earlier comes up in this connection. When we see a case in which the uterus is out of shape, the cervix away up, if we bring on premature labor we may have a retained placenta, and may have to do a hysterectomy afterwards for a septic placenta, which is a formidable operation. I take the position with Dr. Frank that in exceptional cases we should let these patients go to term, but ordinarily we can operate on them. They need operation. There is virtually no danger attending operation. These women can hardly carry a child with a large fibroid or fibroids, and the sooner we relieve the patient of these tumors the better it is for her; still we cannot do it in every case.

PERSONAL EXPERIENCE IN MYOFIBROMATA OF THE UTERUS.

BY

MILES F. PORTER, M.D.,

Fort Wayne.

My object in the present paper is to record some of the more important, salient facts which have been noted in my experience, in the observation and treatment of myofibromata of the uterus.

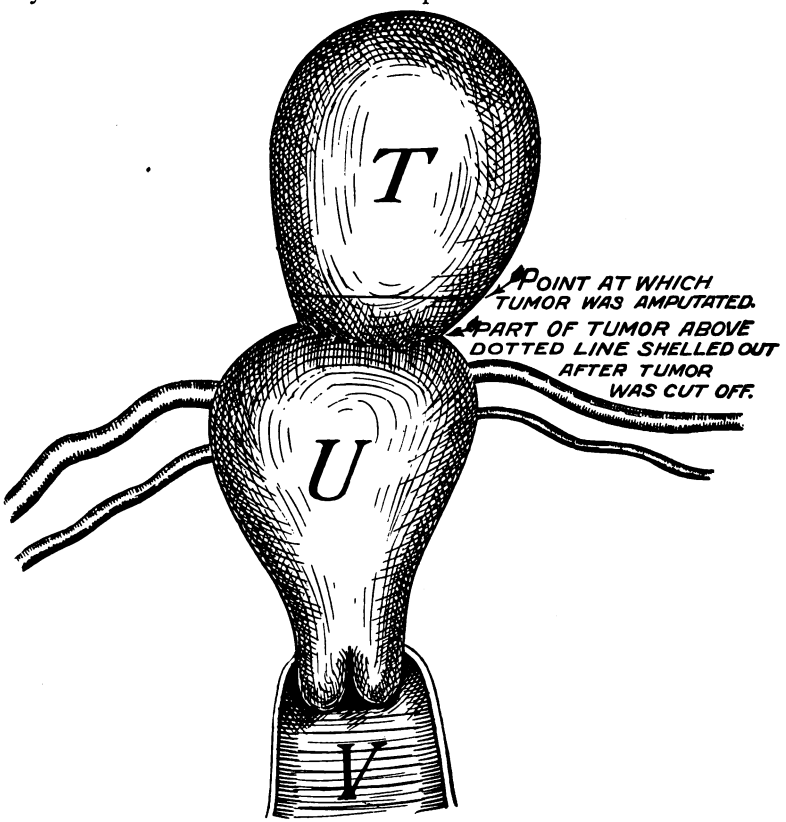
That many of my earlier operations were done in private houses and at a distance from home without adequate assistance, while I was engaged in general practice, accounts for the fact that the record of this part of my work is imperfect.

While this imperfection makes it necessary for me to speak with less mathematical exactness at times than I otherwise might be able to do, yet I am constrained to think that it will not materially detract from what is offered.

All told my observations cover over 125 cases, more than 100 of which were subjected to abdominal hysterectomy. Only two vaginal hysterectomies for myofibroma were done. Vaginal myomectomy was done in a few cases where removal of the tumor could be accomplished without opening the peritoneum, but I have never opened the peritoneal cavity through the vagina for the removal of myofibromata of the uterus, save in the two cases of vaginal hysterectomy above mentioned. Myomectomy by the abdominal route I have done but six or eight times, except in those cases in which fibroids were removed during celiotomy for other causes, and these are not taken into account in this paper. The remaining cases were not operated.

Hemorrhage has not been as common or as prominent a symptom in my cases as Bishop and others would have us believe it usually is. This is accounted for by the fact that the majority of my cases were of the interstitial or subperitoneal variety. In two cases only was hemorrhage in itself of sufficient moment to warrant operation. In one of these cases the metrorrhagia, manifested itself after the menopause had been established,

and the woman did not know that she had a tumor until after the examination, which revealed an orange-sized submucous fibroid in the posterior wall of the body of the uterus which was removed by morcellation through the previously dilated cervix. In the other case, repeated or rather continuous hemorrhage had produced an alarming anemia in a woman of 47 years. In this case an abdominal hysterectomy was done after two days' rest and treatment in the hospital. In several other cases



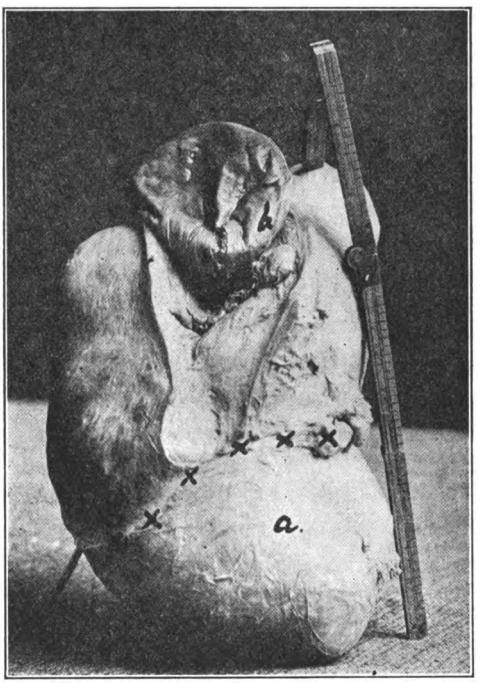
PORTER.—FIG. 1.

metrorrhagia coming on after the menopause, has been noted as a symptom in these cases, but it was not sufficiently profuse to jeopardize life or health.

Pain has been the most common symptom observed, and this, more often than any other single symptom, was the cause which led to the examination and diagnosis. Especially frequent has been the menstrual pain.

In only one case was there an infection of the tubes, and in this case it was the infection which brought the patient to the operating table. A large myofibroma with two pus tubes were removed, and the patient made a slow but good recovery. My experience along this line does not lead me to think salpingitis so frequent a complication of fibroids as many observers seem to believe.

I have had three cases in which pregnancy was the immediate occasion for the operation. Two of these cases were reported in



PORTER —FIG. 2.

full in a paper read before the Western Surgical and Gynecological Association at Chicago, in 1901.[1] The other case (Fig. 1), was one of a large (8¼ lbs.) spheroidal tumor springing from the fundus of a uterus four months pregnant. The operation was necessary to enable the mother to carry her child. She had a normal labor at the end of the gestation period, and has since given birth to a second child. When the previous report of the

case was read, the woman had not been confined. I feared, in this case, rupture of the uterus during labor, or inefficient contractions, as the wall was materially damaged at the point of attachment of the tumor, but fortunately neither occurred. The other case, reported in the same paper as the last, first consulted a physician because of pelvic pain and vomiting. I operated on the ground that she could neither miscarry nor carry the child to term. The specimen (Fig. 2) shows the opinion to have been correct. The third case will be reported in this paper later on. I have had several cases in which miscarriage seemed to be caused solely by uterine fibroids.

Women who have fibroids are peculiarly liable to infection after labor, or miscarriage, or during the menstrual flow, the explanation being that the uterus cannot empty itself well. In several cases this danger of sepsis following labor, miscarriage or the menstrual flow, indicated by the previous history, was regarded by me as being one of the most important reasons for urging operation. As illustrating this class of cases I may briefly report the following:

(1) Mrs. S. had had several attacks of chills and fever which she thought due to la grippe. Suffered from bearing-down pains and vaginal discharge. Although but 44 years old and married eighteen years, had had but two children, and none for fourteen years. A hysterectomy for myofibroma cured her.

(2) Mrs. B., married three months, miscarriage two weeks before consulting me. For a year had complained of soreness in lower abdomen. Had slight febrile disturbance after miscarriage which had not entirely abated at time of operation, fifteen days later.

(3) Mrs. N., age 24, married four months, complained of tenderness and pain in pelvis, especially on right side. Had not menstruated for ten weeks. Her attending physician reported that she had been running a temperature of 100° F. for six weeks. On examination there was found some tympany, tenderness of lower abdomen, with a fibroma of the supposedly pregnant uterus. A supravaginal hysterectomy was done, followed by a prompt recovery. Examination of the specimen showed multiple fibroids. The uterine cavity contained a dead fetus, showing slight evidence of decomposition. (This is the case above referred to as "to be reported later.")

While it is quite common for fibroid patients to report rapid growth of the tumor coincident with pregnancy, my observation

leads me to think that this rapidity of growth is more apparent than real, and that the tumor becomes more apparent and the abdomen enlarges because of the enlargement of the uterus, and not because of the increase in size of the tumor *per se*. On the other hand, it seems quite reasonable to suppose that the great increase in vascularity due to pregnancy would cause these tumors to grow more rapidly in the presence of pregnancy than in its absence.

While partial or complete sterility is a common result of myofibromata of the uterus, I regret to say that in my experience sterility in itself does not seem to worry a large proportion of women to the extent that they consult the surgeon because of it. I have been consulted a few times by women because of sterility due to fibroids, and have done a number of myomectomies in sterile cases, but I am not aware that any of these women subsequently bore children.

Of complicating conditions I have previously related the cases of pregnancy (three cases) and pus tubes (one case) which have come under my observation.

I have record of but one case of malignant degeneration of a myofibroma. This is the case of Mrs. L., age 58, married. One child when 19 years old, followed by chill and fever. For three years had pain and tenderness in lower abdomen, with slight vaginal discharge of rather bad odor. A vaginal hysterectomy was done April 4, 1903. The uterus contained one fibroid the size of a hen's egg and several smaller ones. She made a prompt recovery and remains free from return at the present writing. The microscopist reported this as a "myofibroma with sarcomatous changes." Malignant disease coexisting with myofibroma I have not met with. I have had one case of large abdominal fibroid, together with a fibroid of the cervix, so large as to distend the vagina, fill the pelvis, and protrude at the vulva. This patient came to me seriously septic with the vaginal tumor breaking down. As the vaginal tumor was too large to be delivered through the pelvis, I did an abdominal panhysterectomy. The patient died from the combined effects of shock, hemorrhage, and sepsis. This is the only death I have had, and I feel sure that her life might have been saved by better surgical judgment. The vaginal tumor, which was the source of the sepsis, should have been removed by morcellation, and an abdominal hysterectomy done after the patient had recovered from the first operation. This, together with the case of pyosalpinx duplex, con-

stitutes the whole of my experience with infection as a complication of myofibromata.

As noted previously, I have had three cases complicated with pregnancy. In two this complication was the immediate cause of the operation, and in the third sepsis following the death of the fetus, which was retained, was the immediate cause of the woman seeking surgical relief. Of the other complications I have had one case of myofibroma coexisting with a fibroid of the ovary. This patient was a married woman without children who dated her ill heath from a miscarriage which occurred twelve years before she consulted me. Six weeks before she came to me, she began to have pain in the right inguinal region. Operation revealed a fibroid of the right ovary of the size of a fist, and a smaller fibroid of the right cornu of the uterus. Double salpingectomy, right oophorectomy and myomectomy were done with relief of all symptoms. I believe that the two conditions contributed to the patient's ill health; the fibroid of the uterus was perhaps the cause of the miscarriage and subsequent ill health, except the right-sided pain, which came on later, and was, I think, due to the ovarian fibroid.

In one case of large dermoid cyst of the right ovary, there were several small fibroids studding the uterus which were removed by myomectomy at the same time the cyst was removed.

I have seen but one fibroid which had undergone calcareous degeneration. This was found post-mortem in a patient past fifty years of age, who had died from causes in no way connected with the tumor. The tumor was the size of a croquet ball, and had never given any trouble.

I will mention here a case, because of its comparative rarity, of a tumor the size of an orange, interstitial in location, removed by supravaginal hysterectomy. It was soft on palpation and on section was the color of beefsteak. Microscopically, it proved to be composed practically entirely of muscular fibers.

Personally, I have never removed the ovaries for myofibroma, and have treated but one patient who had had this operation done. I saw this woman because of a profuse metrorrhagia a year after the operation. She refused operation for removal of the fibroid, and continued to have hemorrhages frequently for more than a year, submitting at least on one occasion, to a curettage at the hands of a medical friend of mine. Of the further history of the case I know nothing. This experience and that previously related, of cases in which metrorrhagia first manifested itself after

the menopause, agrees with that of other operators who regard oophorectomy for uterine fibroids as unjustifiable, and who do not feel warranted in assuring fibroid patients that their tumors would cease to trouble them after the menopause.[2] Fibroids that are small and giving rise to no inconvenience need no treatment, but if a source of even serious inconvenience they should, in my judgment, be removed, and this is the only method of treatment worthy of serious consideration.

The ideal operation for myofibromata is one which leaves the genital tract intact, and this ideal should be approached in all cases as nearly as circumstances will permit.

Adopting this creed one should not remove healthy ovaries just because the womb must be removed. The tubes should, in my judgment, always be removed in the course of any operation which renders pregnancy impossible. The reason for this opinion is that they are not unlikely to become sources of trouble if left, their removal adds nothing to the risk of the operation, and there is no reason for allowing them to remain.

Personally, I do not acquiesce in the opinion that the cervix should be removed with the body of the womb. To remove the cervix is to deform the vagina, and it predisposes to vaginal hernia. As an argument in favor of its removal, we have the prevention of cervical cancer. In my judgment the latter argument is not weighty enough to offset the former. My respect for the cervix in a large measure accounts for my preference for the abdominal as compared to the vaginal route in hysterectomy.

Whether to approach myofibromata by the vagina or abdomen, one may usually decide without difficulty before commencing the operation, but the details of the technic should be developed in all cases as the operation proceeds. Whether it is best to work from the top downward on both sides and amputate the uterus after freeing both sides, or to go down one side, amputate the uterus, and liberate the other side from below upward, or to bisect the uterus and liberate the halves from below, will depend entirely upon the case in hand. These, together with other details, should be decided after the case has been examined through the open belly.

In some rare cases the operation can be expedited and the loss of blood lessened by the use of an elastic ligature. In two or three cases I have removed a portion of the uterus, together with a large tumor, with the use of an elastic ligature, and finished

the operation by ordinary methods. The only accident during the operation that has occurred to me has been injury to the bladder. While opening the abdomen I have cut the bladder, because of its unusually high position, twice. In each case the opening was sutured and the abdomen closed as usual without drainage, no inconvenience being caused by the accident. In one case hemorrhage occurred as a result of a split in the right broad ligament, between the ligature on the ovarian artery and the ligature about the stump. This was among my earlier operations, when the stump was treated extraperitoneally. Silk was used as ligature and suture material until the discovery of the formalin method of treating catgut, since which time catgut has been used exclusively both for sutures and for ligatures. I never had any trouble from the use of silk, but others had, and theoretically it is faulty, hence the change to catgut.

While my experience has been too small to speak with positiveness, yet I am constrained to say that the mortality rate for abdominal operations for myofibromata is higher than it need be. Noble's and Olshausen's statistics, which together include 1,151 cases of supravaginal amputation of the uterus, give a death-rate of 5¼ per cent. My own mortality rate has been less than one per cent., but I have been, perhaps, more than usually fortunate. However, making due allowance, I do not believe that the rate should be above two per cent. A higher death rate than this would be to me very disheartening.

While my own experience in vaginal hysterectomy has been practically nil, and in vaginal myomectomy through the open peritoneum entirely so, it seems not unreasonable to ask that this route for the removal of fibroids in cases wherein the peritoneal cavity is opened, should show a death rate of not more than one per cent.

REFERENCES.

1. *Annals of Gynecology and Pediatrics*, February, 1902.

2. Dr. J. Wesley Bovée has written a very excellent paper on the "Development of Fibroids After Removal of the Appendages," which was published in the *Journal of the A.M.A.*, May 27, 1905.

DISCUSSION.

DR. HERMAN E. HAYD, Buffalo.—This is a subject on which most of the members have already presented papers, and therefore we are all familiar with the work. If we take into consideration the mortality in the hands of the best operators in the country, we must agree that the operation of supravaginal hysterectomy is much safer than that of panhysterectomy. It is a fact after looking over the statistics of various general hospitals in which general surgeons as well as gynecologists have operated, the mortality is given as five per cent. for supravaginal hysterectomy, and nine to ten per cent. for complete hysterectomy. Therefore, unless the cervix is involved either in the way of a bad tear, or with considerable cystic degeneration, where we might anticipate the possibility of cancer, it is foolish to remove it, because it makes a mortality and it increases the difficulties associated with the operation. It has, as has been shown, an increased mortality, and it takes time. In order to remove the cervix we have to take probably five to six or eight minutes. Sometimes the hemorrhage is considerable. Therefore, if there are no special indications, there is no necessity for removing it.

The essayist has said that he believes the mortality from hysterectomies is unnecessarily large. I am inclined to believe that there should be no mortality when we have an uncomplicated case of fibroid tumor. But unfortunately fibroid tumors have associated with them so frequently pus tubes, appendicitis, dermoid cysts, and other complications, of necessity there must be some mortality attending these operations. However, the mortality incident to the operation, notwithstanding the possibility of all of these complications, is very small, providing the work is done quickly and properly. Unfortunately, where adhesions exist, too frequently we injure the bowel, the bladder, and other viscera, and unfortunately we do not close up all these tears, and as a result the patient dies; we attribute the death to hysterectomy, when, of course, it was not incident to hysterectomy at all, it was simply the result of an operation in the abdominal cavity.

At the Chicago meeting of this association (1903) I reported twenty-nine cases of abdominal hysterectomy by the supravaginal method in which I lost but one patient. That was the simplest one I had done, insofar as the difficulties connected with the operation were concerned. In separating the bladder after making deperitonization, lifting up the anterior flap, I made a hole in the bladder, a very small one, and I quickly sewed it up, evidently carelessly, because as a result, in the course of three or four days—I think it was the fourth day—the woman died of general peritonitis. Upon post-mortem examination we found the abdominal cavity contained a good deal

of urine, and in this case I am sure it would have been better had I removed the cervix. The tear was low down; it was not sewed as carefully as it should have been, consequently it broke open again. Had the cervix been removed I could have used the vagina as a drain, and then if the wound in the bladder had broken through no danger would have resulted, because drainage for the urine would have been provided by the vagina. Therefore, in some cases, I think we ought to do even a complete hysterectomy although the cervix be perfectly healthy, as in this case.

We have been talking so much of late about conservatism, that one has to take a sort of retrospect and ask himself what is really meant by conservative surgery. There is no question but that we are operating too much; that probably many cases of fibroids could be left, and that they should not be interfered with until some symptoms, either in the way of pain or pressure symptoms of neighboring organs, or hemorrhage, call for surgical interference. And perhaps it is a dangerous thing, as we discussed last year, to advocate the removal of every fibroid tumor of the uterus. However, I believe that every woman who has a growing fibroid tumor is mortally wounded and must be watched. She has got to be the subject constantly of our care and inspection, and I should say, if such a woman were compelled to make frequent visits to the sparsely populated parts of our country, where good surgery cannot be immediately done, such a woman with a fibroid tumor ought to have it removed, even if it is not causing much trouble, but not otherwise.

So far as taking the tubes out, there is no necessity for leaving them after the uterus has been removed. They have no function. I am also inclined to believe that the pendulum is swinging too much in the opposite direction when we listen to some men who are advocating that we should leave the ovaries in cases of total hysterectomy. So far as my experience goes, I believe they should be removed, as they are of questionable use and the subject of future possible complications. I do not see any particular need of a woman having ovaries when she has no uterus. I do not endorse the idea that in leaving the ovaries after the uterus has been removed it will lessen the nervous symptoms and distress consequent upon or incidental to the menopause. It may sometimes, but more often it makes no difference. If we must operate for fibroid tumor or tumors I think the uterus, tubes, and ovaries should be removed.

It is a very serious matter to remove ovaries in a young woman ho may want children, but in a woman whose uterus is removed for fibroid tumor, and usually after she is 35 years of age, I advise taking them out.

DR. J. HENRY CARSTENS, Detroit.—On general principles I think Dr. Hayd is correct. I am conservative and I believe in conserving organs whenever it is possible to do so. I have been very much impressed in the last few years with the strong

and constant talk about conservatism, and as a consequence have left quite a number of ovaries when I did abdominal hysterectomy. But seeing the trouble I have had with these women since, and the trouble the women have themselves, some of them developing ovarian tumors after they were operated on, and consequently having such extensive adhesions, vomiting and the like, I have swung around to my old view. So I say when you remove the uterus, take out the ovaries and tubes, and you cure the patient. If you leave an ovary, no doubt the woman will not have that rapid change. We should explain to these women the exact condition, and sometimes, where a woman is young, we leave an ovary with a clear understanding on the part of the patient of what may happen, and the rule I make is this, that if a woman is near 40 years of age, I remove the uterus, the ovaries, and tubes. On the other hand, if she is near 30, I will try to save one of the ovaries.

DR. WALTER B. CHASE, Brooklyn.—As regards the paper of Dr. Porter, I think his experience certainly shows that he has followed this subject along conservative lines, and he is to be congratulated on the results attending his surgical work.

I have been very much interested in what Dr. Hayd has said in regard to this subject. There seems to be in his statements a mixture of radicalism and conservatism which is a little difficult to harmonize. The doctor tells us that without doubt we are operating too much. I do not know whether he includes fibroids or not. He made the statement, which is rather extravagant, that a woman who has a fibroid is mortally wounded. Post-mortem statistics show that the percentage of women who have fibroids is comparatively large. I fancy the great majority of them have fibroids which never give them trouble; therefore, they do not know of them.

In considering operative measures for fibroids, we must consider two questions, one the location of the tumor, and the other the size of it. We may assume as a general proposition, to which there may be exceptions, that if a woman is in poor health large fibroids should be removed, because when they reach a certain stage the pressure symptoms are so common that the tumors may become bone-locked, so to speak, and other complications take place which are a menace to the health of the woman, while if they are removed early relief can be afforded. My own experience in regard to subperitoneal and interstitial fibroids has been that unless they go beyond a certain size they never give trouble; but those which are submucous in character are likely to give trouble and put the woman in jeopardy. Submucous fibroids are frequent causes of hemorrhage and sepsis, and in my experience put the woman in jeopardy. Large fibroids of the uterus should be removed. We must look carefully after bleeding and sloughing fibroids, and those that are undergoing malignant change.

I would like to say a word or two more aside from the sur-

gical aspect of these cases. We meet women every now and then who have fibroids, yet who positively decline any surgical interference whatever, and we simply leave them to the resources of medicine. I desire to call the attention of the Fellows to the use of two remedies which are not unknown, but which are not as extensively known as they should be. I refer to stypticin and to hydrastinin—two drugs, one acting quickly, and the other more slowly—which have great power in controlling hemorrhage, and thereby conserving those patients who refuse surgical interference.

DR. HAYD.—What is stypticin?

DR. CHASE.—I cannot give you the exact chemical formula. It is cotarnine hydrochloride, made by oxidation of narcotine—one of the alkaloids of opium; and is chemically and physiologically similar to hydrastinin.

DR. FRANCIS REDER, Saint Louis.—I wish to say a few words regarding complications in connection with the operation for fibroids. Dr. Hayd cited a case of a patient whom he had lost from an injury to the bladder. Out of twenty-nine cases that I recall, in four the bladder was injured, and two of the patients died. I do not know whether Dr. Hayd used catgut in closing the wound in the bladder or not.

The question arises, when the bladder is injured in the early part of the operation, and the peritoneum is not opened, whether it would not be better for the surgeon to close up the wound in the bladder, return the patient to bed, and await the result before making any further attempt to remove the tumor. In the two patients who died from injury to the bladder, the peritoneum was opened to only a small extent in both instances. I was present at the operations, and was asked whether or not to continue with the operation. I suggested that we discontinue, close up the opening in the bladder, and await developments. The operation was continued, however, and the fibroid removed. Both patients died from sepsis.

I wish to inquire as to the experience of other members of the association with regard to the accidental wounding of the bladder, and whether it is of frequent occurrence?

I remember one instance in which a patient was catheterized while upon the table and six ounces of urine withdrawn, yet the surgeon entered the bladder in this case.

The relationship of the bladder in this particular case was very interesting. The fibroid in its growth had carried the bladder up to the umbilicus. In this position the bladder was constricted about its middle portion by being pressed against the pelvic bone. This caused something of an hourglass constriction which made it difficult to relieve the organ of all the collected urine. The deceptive feature was that six ounces had been drawn off in his presence on the operating table, leading him to make the inference that the bladder was empty and presumably in its normal position. The accident followed.

DR. CHARLES L. BONIFIELD, Cincinnati.—I do not believe that every fibroid should be removed as soon as it is recognized by the physicians. Fibroids are sometimes found while making an examination to discover if pregnancy exists, and it is oftentimes wise not to mention their presence. If, however, the fibroid is causing sufficient symptoms to make the patient consult a physician, I think it should be removed, unless there are strong contraindications, such as organic disease of the heart, lungs or other organs. The age of the patient has something to do with the necessity for operation, but not as much as many of the profession seem to think. We formerly believed that all fibroids would stop growing after the menopause and many of them would shrink very considerably in size. An artificial menopause was therefore often conduced to check their growth. By further observation we have learned that many of them do not stop growing, few of them shrink very materially and a considerable portion of them undergo malignant or other degeneration after the menopause.

I agree with Dr. Chase that supravaginal hysterectomy is the best operation for a large majority of patients suffering with fibroid tumor.

The question of leaving or removing the ovaries along with the fibroid uterus is one that must be decided in each individual case. It has been my observation and I think the observation of most operators that the ovaries are usually diseased by the time a fibroid tumor has attained considerable size. It certainly is not wise to leave an ovary that is much diseased after the uterus is removed. One would not feel like taking the same chances in such a case by leaving an ovary or part of an ovary that he would where there was a possibility of pregnancy.

The last speaker referred to injury of the bladder, and suggested that further operation be abandoned or deferred until some future date, if the injury was recognized. In the majority of cases the bladder would hardly be entered or injured until the operation is nearly over, and the only thing to do, in my judgment, is to complete the operation. I believe that in the large majority of cases, where the bladder is injured, it is wise to provide for some sort of drainage, so that if the sutures do not hold, the patient will not die from leakage. I have injured the bladder in operating on fibroids and on ovarian cysts, but none of the patients have died. I usually provide for vaginal drainage in these cases, but I do not remove the cervix; I make a stab wound behind the cervix, bring the gauze out through that opening, so that leakage, in case it occurs, will not cause death.

DR. JOSEPH H. BRANHAM, Baltimore.—I wish to say a few words on this subject, for the reason that I have done the operation which Dr. Hayd has condemned. I think Dr. Hayd's statistics are hardly correct; but as I have no evidence to confront them with, what I have to say will be simply to express an opinion. I do panhysterectomy in all cases since I began

operating. I began to do this operation for the reason that in watching other men operate I saw that they had trouble with the stump of the cervix. Of course, trouble from this source in these days is not so frequent as it was many years ago, when patients died from hemorrhages and from other troubles connected with the stump.

When I began to operate I concluded I would not leave any stump, and I have not seen as yet any objection against taking out the cervix whenever the uterus is removed. It does not add any additional danger to the operation. It probably takes a little longer than to treat the stump as it is treated at the present time. When possible, I make a high vaginal incision, partly free the cervix, if it can be brought down, and then go in above and take out the whole organ. I do a vaginal hysterectomy if the tumor is not so large as to injure the surrounding organs. My experience in operating on these tumors covers over forty cases, and, like Dr. Hayd, I have only lost one patient. This patient had some complications, but did not die, as did Dr. Hayd's patient, as the result of the injury to the bladder. I was not able to get a post-mortem examination. It was one of my recent cases. It was a case in which hemorrhage had been profuse; the patient had very little blood when I operated, and evidently she lost more blood than she could stand during the operation. She was undoubtedly a bleeder. Her bladder was opened while I was separating the anterior part of the uterus from the vagina; the opening was closed. There was no leakage, so far as could be made out, and no sign of any discharge of urine from the vagina, and catheterization brought clear urine right along. But this patient died four days after the operation suddenly with symptoms of collapse, probably from thrombosis, but I had no way of verifying that, as I could not obtain a post-mortem examination.

As far as operating on all cases is concerned, of course no one would advocate it; but I think the tendency is toward the belief that secondary degenerative changes, malignant or otherwise, follow a large number of fibromata that are left in the uterus. I have made an exploratory incision in four cases without operation. In the first case the fibroid was so large that I became alarmed and closed up the wound, which was perhaps a wise thing to do. However, I would not hesitate to remove such a tumor now without running any great risk. Since then I have opened the abdomen in four cases, in which there was a rapid increase in the size of the tumor after some years, and these patients were advised by surgeons that they considered it dangerous to leave the tumor alone, and in each case I found malignant papillary degeneration of the tumor extending to the general peritoneal cavity, possibly a secondary complication. The patients did not do badly from the exploratory operation, but died later from the secondary condition. If these tumors give any trouble they should be removed, as leaving them subjects

the patients to great danger afterward. I believe in taking out the entire uterus, because a number of cases have been reported of pathologic changes having occurred in the part of the uterus left, such as secondary fibroids or some form of malignant growth. By careful hysterectomy you get rid of the danger. Another advantage is you have good, free drainage which may in certain cases be very advantageous.

DR. J. HENRY CARSTENS.—Will you please tell us what your experience has been with regard to shortening of the vagina and premature atrophy of it after the removal of the cervix? Do you not find that you have a great deal more atrophy than if you leave the cervix?

DR. BRANHAM.—I do not know. Theoretically, there may be something in it. I have never had a case in which the patient complained of any trouble after panhysterectomy. Of course, there may be such cases, but I have never had a patient who complained of any inconvenience, and I have had no cases of vaginal hernia.

DR. CARSTENS.—What about a useful vagina?

DR. BRANHAM.—I have had no patient in whom there has been complaint along that line.

DR. PORTER (closing the discussion).—As to the removal of the ovaries, the question has been asked, Why should we leave an ovary when we remove the uterus? Let me answer that question by saying, Ask the woman why? You say you have not heard the woman complain of her vagina. Our women suffer intensely, and for a long time, with such troubles before they complain. I do not see any more reason for removing an ovary or the ovaries because we have removed the uterus than for removing a man's testicles simply because we have taken away the dilated veins that accompany the vas deferens. I see much reason for leaving the ovaries there.

Another reason why I think complete hysterectomy is not advisable ordinarily is given very distinctly and very graphically in the case related by one of the speakers. One of the reasons for the woman's death, according to his statement, was that perhaps she lost more blood than was necessary. Patients always lose more blood during a complete hysterectomy in any man's hands than they will lose with the same kind and degree of skill during a supravaginal hysterectomy. That is another reason why we should not remove the cervix.

With reference to closing a hole in the bladder when it is made, I believe with those who have replied to Dr. Reder's question that ordinarily, when the operation has proceeded so far, it should be finished and the bladder closed, and if you have any doubt about the closure being perfect, drain the abdominal wound, or, better still, put a catheter in the bladder and keep it empty. Ordinarily, I would not want to put a woman back to bed because I had the misfortune to cut open her bladder.

DR. BRANHAM.—I would like to ask Dr. Porter why he does vaginal hysterectomy? He advises that when it is feasible.

DR. PORTER.—I have had occasion to do two vaginal hysterectomies for fibroids of the uterus, both in women who had no husbands, and who were long past the menopause, who had diseased cervices, and in these women vaginal hysterectomy could be done with less risk than an abdominal section; hence my choice of the former.

DR. BRANHAM.—Did you not say that vaginal hysterectomy was a safer operation than an abdominal section?

DR. PORTER.—Vaginal hysterectomy, with a small uterus, without any adhesions, is safer than abdominal hysterectomy, according to statistics

UNUSUAL DILATION OF CORNUAL BLOODVESSELS: RUPTURE INTO UTERINE CAVITY: HYSTERECTOMY: RECOVERY: REPORT OF A CASE.

BY

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A SUDDEN, severe and spontaneous gush of fresh blood from the uterine cavity usually means the rupture of a bloodvessel. During the child-bearing period, the partial or complete separation of fetal membranes constitutes the most frequent cause; less often it comes from an excessive area of vascular endometrium.

Later in life such hemorrhages usually result from rupture of immature malignant blood channels or ulceration into large uterine vessels. A few other types of pathology occasionally stand in causal relation to sudden serious bleeding from the uterus. One of the rarest among these is spontaneous rupture of large. varicose veins, which have their tortuous course within the substance of the uterine wall.

In the presence of pregnancy, fibroid tumors, sarcoma, etc., the blood channels are often greatly dilated. Under ordinary conditions, however, those vessels found within the uterine wall are singularly free from aneurysm and varicosities. This is probably due, as Findley points out, to the elastic pressure the uterine musculature normally gives its vessels. The great frequency with which varicose veins occur in the loose connective tissue of the broad ligaments would give support to that view.

A recent case of varicose veins situated within the uterine muscle at the right cornu is so typical that it seems worthy of record.

Mrs. X., aged 45, was a vigorous girl of active habits. She has had no illness of consequence for many years, until acute catarrhal fever last January, and pneumonia for five weeks in January and February, 1905.

She was married 15 years ago, is the mother of 3 children, and

has had 4 miscarriages. Her last miscarriage occurred 4 years ago and her last child is 20 months old.

Menstruation began at 15. Her periods recurred at intervals of 28 days; have been rather profuse, have lasted 5 to 7 days, and always showed a tendency to return in the event of excessive exercise. Menstruation was never painful until the beginning of her recent illness.

She did not menstruate from the time of her last conception until March 1, 1905. At that time she had severe pain in the region of the right cornu, lost a little blood for a day or so. Three days later, March 5, without pain or warning of any kind, she suddenly lost a pint or more of fresh red blood. She gained strength quickly, but remained in bed for a week.

Second Hemorrhage.—She did not bleed again until April 7. She spent some time shopping April 6. The next day, while resting, she bled furiously for a short while—without pain or warning of any kind. She lost more than a pint of fresh blood in a very few minutes. Bleeding ceased almost as suddenly as it began, and she lost no more blood until April 30.

Third Hemorrhage.—April 30, she was annoyed by a feeling of fulness in the pelvis, while walking a short distance. She was quiet the remainder of the day until 5 P. M. when, while sitting quietly, she again suddenly bled furiously, and was put to bed, very pale and very weak.

The following day Dr. Pershing prepared to wash the flabby uterus with very hot water with the hope of causing it to contract firmly, and thus prevent a repetition of her recent experiences.

He had scarcely begun, when a stream of blood hissed out. She lost more than at any previous time, and looked almost bloodless. It was with extreme difficulty that he succeeded in keeping her alive during the next day or so.

I first saw her with Dr. Pershing, May 7, one week after her last hemorrhage. She was still markedly anemic and very weak. The next day she was transferred to the Allegheny General Hospital in order to insure speedy action in case of another hemorrhage. Fortunately it did not occur, and she was allowed to regain much blood and considerable strength. The day she entered the hospital her blood showed:

Hemoglobin	60%
Red blood cells per cu. mm.....	3,260,000
White blood cells per cu. mm.....	6,000

An examination two days before the operation showed:

Hemoglobin	65%
Red blood cells per cu. mm.	3,800,000
White blood cells per cu. mm.	7,540

Before leaving the hospital she had:

Hemoglobin	75%
Red blood cells	4,100,000
White blood cells	9,100

Her strength and general health had improved correspondingly. When seen one week ago, she said she felt perfectly well. She was found to be normal in every respect.

Operation.—May 31, 1905. Ether, 4½ ounces. Vaginal hysterectomy, clamp method, 40 minutes. There were no technical difficulties, though bleeding from each slight injury to the uterus was profuse. In fact, it became alarming while the fundus was being delivered. At each grasp with volcella forceps, the blood poured out as from a squeezed sponge. It promptly ceased when the fundus was delivered. She left the table in good condition. Convalescence was normal in every way.

Gross Pathology.—The uterus, 8.5 cm. long, 6 cm. wide and 4 cm. thick, was opened by slitting the anterior wall from cervix to fundus, and from this line (one inch below its upper end), to the cornu on each side.

In the right cornu the knife opened into a varicose vein 2 cm. in diameter, containing a blood clot 1.5 x 1.3 x 6 cm. in diameter. Closer inspection showed that this clot protruded partially into the free uterine cavity through an opening in the vein. This opening was 4 mm. in diameter. The clot served as a plug, completely closing the rent.

In the immediate vicinity, several other veins measuring 4 to 6 mm. in diameter were severed, and their curled lips pouted. They could be traced to cavities of considerable size.

From one end of the uterus to the other, the cut surface was studded by a large number of bloodvessels, which stood out above the surface, strongly suggesting sclerotic arteries.

The uterus was soft and flabby.

Microscopic Examination.—By Dr. Elizabeth S. Moore, confirmed by Dr. Simon Flexner.

Specimen consists of sections from the uterine wall.

Mucous Membrane.—The surface epithelium consists of the usual single layers of cylindrical cells. The glands are somewhat

hypertrophied, in many places showing convolutions. The interglandular *stroma* appears normal.

Musculature.—The thickness of the uterine wall just below the entrance of the left tube is 19 mm. In section the picture presented resembles that of a uterus undergoing the process of involution.

Bloodvessels.—The vessels in the walls of the uterus are increased in size. In many the lumina are much dilated, in others the lumina seem smaller than normal, but the walls of these vessels are thickened. The intima of the arteries shows proliferation. In some the proliferation extends around the whole vessel wall—an obliterative endarteritis. In others, the intima shows a nodular proliferation, involving only a part of the circumference, a nodular endarteritis. The musculature of some of the vessels appears decreased. In most such cases the intima shows a correspondingly increased proliferation. In a few, however, the intima was not proliferated and the vessel wall at such a point is thin.

The vessels in the right *cornu* especially show dilatation and endarteritis. Section through ruptured vessel shows proliferation of intima with degeneration of its cells. In the tissue surrounding the vessel there is an abundant infiltration of small round cells.

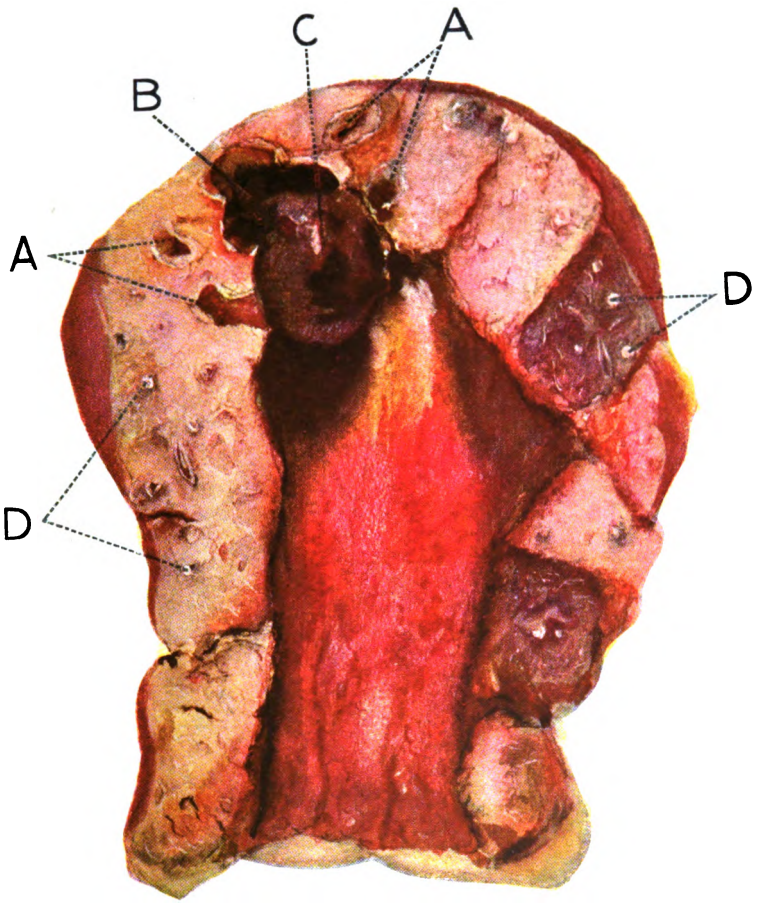
Remarks.—It would appear that in this instance we have an excessive vascularity of the uterus, with sclerotic arteries and varicose veins.

The sclerosis is found in its several forms, varying from a slight nodular infiltration of the intima to complete obliteration. In addition, we have the unusual spectacle of greatly dilated varicose veins, which were the subject of repeated spontaneous rupture with repeated spontaneous closure.

We also have a clinical picture which portrays the perils of this disease in its most serious form. In the well-marked cases that have come under my observation, arteriosclerosis of the uterine vessels has been accompanied by menorrhagia and metrorrhagia which began between the ages of 38 and 45. They grew more and more pronounced, have resisted medicinal and minor surgical measures, finally endangered life, and have yielded only to hysterectomy.

In this case, however, the first symptom was a furious hemorrhage, due to rupture of a large varicose vein into the uterine cavity. Within two months three other hemorrhages burst upon her without warning, and each imperiled her life.

AMER. JOURNAL OF OBSTETRICS
AND
DISEASES OF WOMEN AND CHILDREN.
NOVEMBER, 1905.



DILATATION OF CORNUAL BLOOD VESSELS—*Simpson.*

A—VARICOSE VEINS.
B—VARICOSE VEIN WHICH RUPTURED INTO THE UTERINE CAVITY.
C—BLOOD CLOT 15 X 13 X 6 M.M. PARTLY WITHIN VARICOSE VEIN AND PARTLY WITHIN UTERINE CAVITY.
D—SCLEROTIC ARTERIES.

The gross pathological findings make it clear that without surgical intervention, hemorrhage or infection would inevitably have closed the scene within a short while.

DISCUSSION.

DR. CHARLES GREENE CUMSTON, Boston.—The case reported by Dr. Simpson is unique of its kind and opens up the broad question of the symptom hemorrhage in diseases other than malignant of the uterus and fibroids. The only point to which I call attention is hemorrhage of a serious nature—metrorrhagia occurring in chronic Bright's disease. The subject has been written up considerably of late, particularly by French observers, and I merely call attention to the fact of arteriosclerosis which we naturally get in chronic Bright's disease and the symptom hemorrhage.

DR. OSCAR H. ELBRECHT, Saint Louis.—I would like to briefly mention a case which is similar to that reported by the essayist. The patient came to be curetted for endometritis and I started to scrape with a small, sharp Simon curette, but within a minute after starting the hemorrhage was so profuse, that nothing but packing the uterus would stop it; the stream of blood being almost the thickness of a lead pencil.

After a few minutes, I withdrew the pack and commenced again, thinking that after the bleeding surface or the tissue which caused it was curetted away, the hemorrhage would cease, but she bled so freely and continuously again, that I was compelled to repack. I curetted the uterus subsequently—within a few days—with a larger spoon, and, much to my surprise, did not have a recurrence of the hemorrhage.

I believe the pathology in my case was somewhat like this exceedingly interesting case reported by Dr. Simpson, only not quite as extensive. At any rate, the general pathology impressed me as being analogous and hence my desire to record it. A hysterectomy, had it been performed, would have exposed the exact pathology.

DR. SIMPSON (closing the discussion).—I wish to emphasize the point Dr. Cumston brought out, that in chronic Bright's disease with general arteriosclerosis we not infrequently find excessive hemorrhage from the uterus. This was a case in which there was no renal involvement, and I have seen a few other cases in which the kidney did not appear either chemically or microscopically to be involved.

PRIMARY BOWEL RESECTION *vs.* ARTIFICIAL ANUS IN THE TREATMENT OF STRANGULATED HERNIA, WITH REPORT OF SEVEN CASES.

BY

JOHN YOUNG BROWN, M.D.,

Saint Louis.

THE modern radical operation for uncomplicated hernia is almost an ideal procedure. With a *nil* mortality and less than two per cent. of recurrences, it is unfortunate that surgeons should be called upon to deal with the results of long-standing strangulation. The mere existence of hernia is a strong indication for operation; in the presence of strangulation, taxis and temporizing is little short of criminal. It is my purpose in this paper to limit myself to a discussion of the surgery of those neglected cases of hernia in which at the time of operation the intestine found in the hernial sac is so damaged that the operator is forced to resort to one of two procedures; the establishment of an artificial anus or a primary bowel resection. The mortality in such cases is still too high. In 332 cases collected by Gibson[1] 128 males, 209 females, the mortality was 28.6 and 39 per cent. respectively. Hofmeister[2] reports 25 cases of primary resection with a mortality of 40 per cent. The statistics of Von Bramman show a mortality of 46.6 per cent. in 68 cases following the establishment of artificial anus. To this of course, must be added the secondary mortality which must necessarily follow as the result of efforts made to re-establish the intestinal continuity. If the relative merits of these two procedures are to be judged in the light of statistics there is little to choose between them. From a surgical point of view quick, clean bowel resection has much to commend it. A fairly large experience has convinced the writer that the cases in which the establishment of an artificial anus is indicated are few, and that this operation is only justified when the patient is bordering on the moribund state. During the last eighteen months I have operated upon seven cases of strangulated hernia; four of these were males, three females. In four the hernia was of

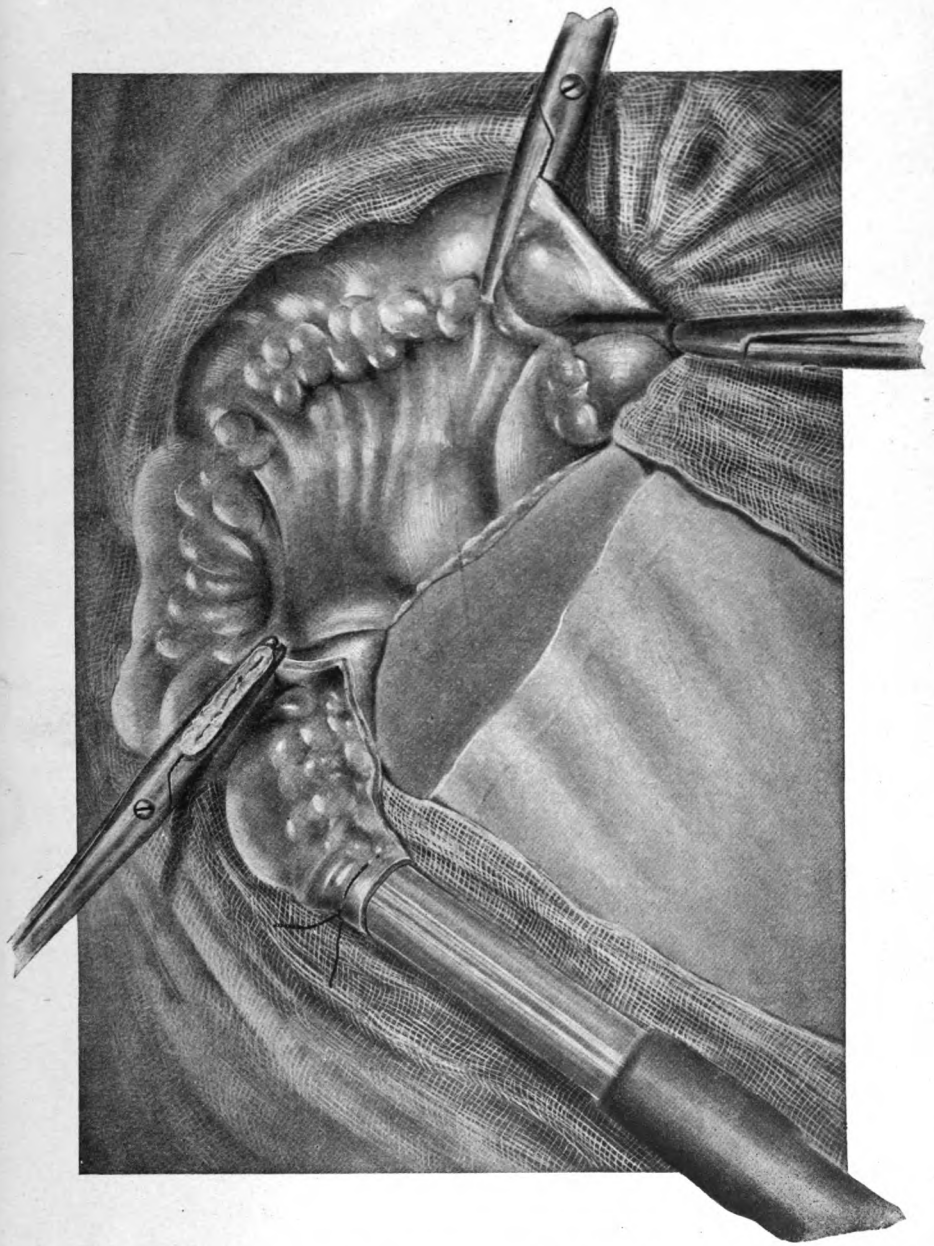
the inguinal variety and in three of the femoral type. In all primary resection was done, followed by a radical operation at hernial site. Of the seven cases six recovered and one died. The oldest patient was seventy years, the youngest twenty. The duration of strangulation, longest fifty-seven hours, shortest nine hours. Amount of gut removed, largest four feet, smallest eight inches. Portion of gut involved small bowel. In each case the condition of bowel was such as to leave no question concerning the advisability of its removal. In all the resection was done through a supplementary abdominal incision and the anastomosis was made with the Murphy button. The results obtained I attribute to the careful attention to certain points in the operative technique, a neglect of which I believe has been responsible for the high mortality invariably accompanying the surgical treatment of this condition. The operative technique employed by the writer is practically as follows:

When a patient enters the hospital with a strangulated hernia no effort is made to reduce it by taxis or temporizing methods. Preparation is immediately made for operation. This consists of the usual shaving and scrubbing, to which is added a careful stomach washing with water as hot as can be borne. This later procedure is important as it rids the organ of the filth resulting from the retrograde peristalsis always present in such cases. As soon as the preparations are completed the patient is anesthetized; general anesthesia is preferred. For ordinary hernia work local anesthesia can be used with comparative satisfaction, but where distended bowel has to be dealt with and extensive resection is contemplated, general anesthesia is safer and far more satisfactory. The classical incision is made at hernia site and the sac is reached and opened in the usual manner. Before attempting to relieve the constriction the sac is carefully cleansed with hot saline solution. This prevents leakage of septic serum from the sac back into the peritoneal cavity. The constriction is now relieved. If the gut responds and its viability is beyond question it is returned and one of the ordinary radical operations for hernia is proceeded with. If on the contrary it is deemed advisable to resect, a supplementary median abdominal incision is quickly made. By a careful distribution of gauze the bowel can be delivered through this incision with ease and without soiling the peritoneal cavity. The gut being delivered, the operator has full command of the field.

In resecting bowel for this condition there are three important points to be observed: first, the resection should extend well back into healthy tissue; second, the distended bowel above the constriction should be drained of its highly septic contents; third, the work should be done with the greatest possible dispatch. By means of the drainage apparatus which I exhibit (Fig. 1) this work is greatly facilitated. The drain consists of a medium sized glass drainage tube to which is attached a long rubber hose. The method of its application is as follows:

The extent of the resection having been determined, the bowel is clamped on either limit of the section to be removed. The clamp on the proximal end being placed three or four inches above the point ot resection, the gut is now stripped of its contents and a second clamp is placed at the point of proposed incision, the bowel is now incised above this clamp and the drainage tube is placed in its lumen, being retained there by a silk ligature passed through mesentery and around the intestine. The end of the incised bowel is surrounded with gauze to prevent soiling of the field, the clamp above the drain removed, and the bowel allowed to empty itself through the tube into a receptacle under the table, while the operator proceeds with the resection. (See plate.) The mesentery is now quickly ligated and the damaged segment of gut removed and half of the Murphy button is now placed in the distal gut. By the time this is accomplished the drain will have served its purpose; the clamp is again placed above the drain and the drain removed. The other half of the button is next inserted and the anastomosis completed. As the drain works with the operator much time is saved and one of the most important steps of the operation is accomplished, namely, the thorough removal of gas and septic bowel contents, without loss of time and with no soiling of the surrounding tissues. The bowel is now washed off with hot saline and returned. A heavy gauze pad is placed in median wound to protect the intestines while the radical operation at hernial site is completed. This accomplished, the general peritoneal cavity is copiously irrigated with hot normal salt solution, a glass drainage tube is placed in the vesico-rectal pouch, the median wound closed with through-and-through sutures. The patient is now returned to bed and as soon as possible thereafter is placed in the exaggerated Fowler position.

The after treatment is simple. Nothing is given by mouth for forty-eight hours. Saline enemas are administered every



DRAINAGE OF BOWEL DURING RESECTION FOR STRANGULATED HERNIA.—*Brown*

three hours to which an ounce of liquid beef peptonoids is added. If the condition of the pulse should indicate, strychnine and hypodermoclysis is resorted to. Morphine is never used if it is possible to do without it. The drainage tube is generally removed at the end of twelve or twenty-four hours.

Remarks.—I am well aware that the operation as above described is open to strong theoretical objections. The danger of infecting a clean peritoneal cavity while delivering a loop of infected bowel through a supplementary incision at once suggests itself. The results obtained in the cases reported tend

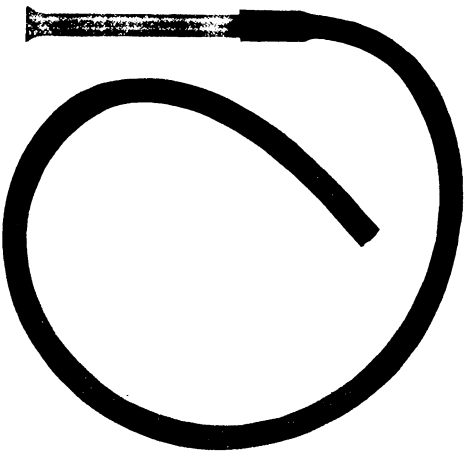


Fig. 1.—Intestinal Drain Tube.

to prove that this objection is not well taken. If this danger is eliminated, the advantages of the method at once become apparent. These advantages are many. In the experience of the writer it has been found that in many cases of strangulated hernia the damage to bowel does not stop at the limit of the hernial constriction but that it frequently extends far beyond, and that the pelvis and small bowel as a rule will show evidence of beginning peritonitis. Case 5 illustrates this point very forcibly. In this patient about two feet of ileum, black and necrotic, was found in sac. After releasing the constriction it was found on opening the abdomen that the gut and mesentery were widely involved; pelvis contained much turbid serum, resection to the extent of four feet being necessary. Through a median incision quick wide resection was done, followed by

a careful peritoneal toilet which could not have been made had the resection been attempted at the hernial opening. Regarding the advisability of irrigation and drainage, this is a matter that the individual operator must determine. Personally I have found that a copious flushing of the abdominal cavity acts as a powerful stimulant, and as stimulation is generally needed in cases of this character, irrigation is uniformly done. In all of the cases here reported the pelvis was drained.

CASE I.—George Love, colored, male, aged 24, admitted to St. Louis City Hospital February 3, 1904, suffering from a strangulated inguinal hernia of right side. Hernia had been down for 24 hours. At operation 10 inches of black necrotic ileum was found in sac. Eighteen inches of gut was resected, anastomosis made end-to-end with Murphy button. Button passed on 11th day. Recovered.

CASE II.—Elizabeth Pierson, white, female, age 54, admitted January 6, 1904, with strangulated femoral hernia of left side. Hernia had been down 30 hours. At operation about 4 inches of gangrenous ileum was found. Resection done; 8 inches of small bowel removed; anastomosis made end-to-end with Murphy button. Button passed on 23d day. Recovered.

CASE III.—Catherine Benecke, white, female, age 70, admitted to hospital February 15, 1904, with a strangulated femoral hernia of left side. Hernia had been down for 16 hours. At operation 7 inches of gangrenous ileum was found in sac. Ten inches resected, anastomosis made end-to-end with Murphy button. Button passed on 10th day. Recovered.

CASE IV.—David Robinson, colored, male, age 20, admitted to hospital January 21, 1904, with strangulated inguinal hernia of right side. Hernia had been down 14 hours. Eighteen inches of black necrotic bowel found in sac. Twenty-four inches removed. End-to-end anastomosis with Murphy button. Button passed on 8th day. Recovered.

CASE V.—John Newman, white, male, age 57, admitted to hospital March 28, 1905, with a large strangulated inguinal hernia of right side. Hernia had been down for 12 hours. At operation about 2 feet of badly damaged bowel was found in hernial sac. On opening abdomen mesentery was found badly thrombosed; thrombosis extended 8 or 10 inches below and above constriction. Four feet of ileum was resected; end-to-end anastomosis with Murphy button. Button passed on 23d day. Recovered.

CASE VI.—John Clark, white, male, age 23, admitted to hospital June 6, 1905, with a strangulated inguinal hernia of right side. Hernia had been down 14 hours. At operation 2 feet of gangrenous ileum was found in hernial sac. Mesentery badly thrombosed; thrombosis extended well back above and below constriction; 3 feet of ileum resected; end-to-end anastomosis with Murphy button. Button passed on 26th day. Recovered.

CASE VII.—Lizzie Schuett, white, female, age 44, admitted to hospital August 21, 1904, suffering from a strangulated femoral hernia of the right side. Hernia down 57 hours. This patient was in a very bad condition on admission. At operation a loop of gangrenous ileum and sloughing omentum found in sac. Widespread peritonitis present. One foot of small bowel resected; anastomosis made end-to-end with Murphy button. Patient died 36 hours after operation from diffuse peritonitis.

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2. *Beitr. z. Klin. Chir. Bd.*, XVIII, Jan. 3.
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4. Ames: Year Book Surg., 1903.

DISCUSSION.

DR. JOHN B. DEAVER, Philadelphia.—I am very glad to endorse, practically, all Dr. Brown has said in his paper. I look upon taxis in cases of hernia very much as I do upon the teaching of the medical treatment of appendicitis. The reason why we have such a large mortality in cases of appendicitis is because the scalpel of the surgeon is not administered immediately the diagnosis is made. And the reason why we have so many deaths from strangulated hernia is because the professors throughout the country are still teaching taxis, and so long as this obtains, so long will deaths take place. It is my principle to immediately anesthetize the patient with the understanding that if I fail to reduce the hernia, with general taxis, I operate. If this course were pursued, there would be comparatively few deaths from strangulated hernia. It is neglect or inability to recognize the condition oftentimes that causes so many fatalities.

As to Dr. Brown's method, I endorse it practically, with one or two exceptions. I do not use any mechanical appliance. The fewer the instruments I use, the happier I am. My as-

sistant holds the bowel with a piece of gauze, and with a pair of scissors I excise it. I do not use the Murphy button, but needle and thread. I do an end-to-end anastomosis. I rarely make supplemental incisions, as recommended by the essayist, and never in the inguinal variety of hernia. I simply enlarge the wound; in the femoral variety of hernia it may be necessary to open the abdomen above Poupart's ligament. I never irrigate. After having done my resection and end-to-end union, I slip the bowel back, leave a piece of gauze in the wound, but do not bring it in contact with the bowel at the site of the union.

DR. THEODORE A. MCGRAW, Detroit.—The subject under discussion is one in which I am intensely interested. Dr. Brown has achieved wonderful success in operating on cases of strangulated hernia. For several years I have been interested in a method which I have devised, but have found it difficult to find patients upon whom to operate and demonstrate its usefulness. There is this peculiar fact to be noted, that in Detroit we rarely have any cases of strangulated hernia. Fifteen years ago I operated probably once a month for the relief of strangulated hernia. I operated then every once in a while on cases of gangrenous hernia. Four or five years ago I proposed a method of treating strangulated hernias with the elastic ligature, which will enable us to resect the gut and at the same time fix it, so that it will require no further operation. I have had but one case of gangrenous hernia since I devised this method, and the patient was so far gone that death occurred in six hours, so that my method at my hands has not had a fair chance to demonstrate its utility. A weak point in the operation of Dr. Brown, it seems to me, is in making this large incision in the bowel. (Demonstration on blackboard.) However, when any method has been as successful as this has been, I do not think we should criticise it too much.

With your permission and patience, I will describe the method which I have been trying to get cases to operate on. We do not have cases of strangulated or gangrenous hernia in Detroit, because we have taught the profession better. That is the general experience, I believe, of Detroit surgeons. We do not apply taxis. When a patient comes to us with a hernia, we operate, making the radical operation as soon as possible. That is the way to deal with such cases, and I agree with Dr. Deaver that the teaching of taxis in these cases ought to be dispensed with entirely. We ought to operate on every case that comes to us, and make a radical cure. (Here Dr. McGraw demonstrated the use of the elastic ligature and its application.)

I have had one case of fecal fistula of several months' standing, the result of typhoid fever. There had been ulceration of the gut; an incision was made by a surgeon, and this fistula resulted. I followed the fistula up by opening the abdomen, and putting the elastic ligature on the afferent and efferent portions of the intestine, making an anastomosis, and closing the fistula

up. The patient died at the end of three weeks. Before death his bowels operated in the natural way. A post-mortem examination was made, and it was found that the fistula had nearly closed; in other words, it had healed practically by making the anastomosis above it. In another patient, operated for appendicitis, the surgeon who operated for that disease did not notice in removing the appendix that on account of a previous attack there was a constriction of the ileum, and about two weeks after the operation for appendicitis there was obstruction of the bowel. I was called to see the patient, and opening the abdomen, found a constriction of the ileum; I pulled it out, made an opening in the ileum, and put on the elastic ligature above it. In four days this patient had fecal movements from the bowels in the natural way, but died at the end of fourteen days. The fistula was nearly closed at the time.

I published the elastic ligature method four or five years ago. I do not say that it is as successful as the method described by Dr. Brown, because it has not been tried sufficiently by surgeons; but the elastic ligature is easy of application. You may make an incision in the abdominal wall, pull out the gut, put a ligature in, fasten the gut together with sutures, cut off the gangrenous portion, and presently the natural contraction there and the other changes which take place in the abdomen will cause food to pass through in this direction (indicating on blackboard), through the normal opening, and not through the fistula.

DR. HALL.—You said that both of your patients died? From what did they die?

DR. MCGRAW.—Both patients were septic at the time of the operation. In the man who lived the longer of the two the fistula was nearly closed. In the other, he had had intestinal obstruction for two weeks, and death was caused by slow sepsis.

DR. J. HENRY CARSTENS, Detroit.—We are under obligations to Dr. Brown, because he has taught us many things about intestinal surgery; still, I think we must criticise hi n a little if we do not agree with him. (Here Dr. Carstens demonstrated the application of the McGraw elastic ligature.)

Dr. A. J. Ochsner and other surgeons I might mention, use the elastic ligature frequently, and it is a simple device for short circuiting the bowel for all kinds of cases. I agree with Dr. Deaver and Dr. McGraw with regard to pulling out the bowel through the opening mentioned by Dr. Brown. What is the use of making another opening, thereby having another chance for infection? Why not pull the bowel out, cut off the portion you desire, and apply a Murphy button? I have done this operation in several ways.

In Michigan, as Dr. McGraw has told you, we do not have any strangulated hernias. It is eight or ten years since I had my last case. It is a great deal easier to adopt the method I have mentioned than to open the abdomen and run the chance

of infecting the general peritoneal cavity. If there is likely to be any trouble from infection it will be limited to the little part where the hernia is, adhesions will form, and any sloughing that takes place will have a good exit and you do not infect the general peritoneal cavity.

DR. HENRY HOWITT, Guelph, Canada.—My experience in this particular line of surgical work has been very limited, but I believe that the case I am about to report is worthy of record on account of the advanced age of the patient. Five years ago I was called to see a prominent brewer in our district, a Yorkshireman, 81 years of age, who, like many of the sturdy race, governed everything relating to his health by his eating capacity. His great complaint was that he could not eat. He had a large, strangulated, scrotal hernia, persistent vomiting and severe abdominal pain. The hernia had existed for many years and he maintained that it was not a factor in his case.

At the operation we found two feet of the intestine gangrenous. This was removed and an end-to-end anastomosis done by a Murphy button. The upper portion of the sac was removed and the wound was only partially closed and packed with gauze. The button was passed on the ninth day and the patient recovered without a single untoward symptom. Two years later I removed calculi from his bladder, and at the same time closed the hernia, which had returned.

In regard to the McGraw elastic ligature, I believe that there is a good field for it, especially in desperate cases, where a radical operation is out of the question and a simple side-to-side anastomosis will carry us over the critical period, for with it the work can be performed in less time and under more unfavorable circumstances than with any other device.

When called to a case in which an immediate lateral anastomosis is demanded, in the absence of the McGraw ligature and the Murphy, I have found that a strong silk or linen ligature answers the purpose admirably; it cuts through in as short a time as the rubber ligature. Quite recently I did a gastrointestinal anastomosis with a silk one and found it answered perfectly; and other surgeons have used it successfully.

DR. THOMAS B. NOBLE, Indianapolis.—I would like to ask Dr. Brown whether he relies on the peristaltic movements of the intestine to empty the drain, or whether he assists it by manipulation, and whether he would touch it in case of general intestinal paresis?

DR. LOUIS FRANK, Louisville.—I agree with everything that Dr. Brown has said most thoroughly. Last year, at the meeting in Saint Louis, I brought out this point of supplemental incisions. I cannot see the difference, though Dr. McGraw does, of withdrawing clean bowel through a dirty, infected, hernial sac, then replacing it, and taking the same bowel and doing this work through a supplemental incision. I do not see how in-

fection of the general peritoneal cavity can be avoided in this manner any more by operating through a single incision than by operating through a supplemental incision. It is often desirous in the desperate class of cases referred to by Dr. Brown, where we have gangrene beyond the sac, extensive thrombosis of the mesentery, to go in very often when infection of the peritoneum has already taken place. It is necessary in many instances, as I have done, to cleanse the general cavity, and I believe I can do this more thoroughly through a supplemental incision than I can through the hernial opening itself. If we do this work through the hernial opening it means an extensive incision.

I would go even further than Dr. Deaver and say that the time has passed for any attempt whatsoever at reduction of a strangulated hernia by taxis. I do not believe that we should attempt it gently, carefully, or any other way, with the patient under an anesthetic. I have seen small hernias reduced *en bloc*, sac and all, and have had to open the abdomen afterwards to relieve constriction, doing a resection of gangrenous gut. For this reason I do not believe there is any place for taxis. As Dr. Deaver said about appendicitis, the moment the diagnosis is made, operation is absolutely imperative in these cases of strangulated hernia.

DR. BROWN (closing the discussion).—There are a few points brought out by the discussion which I would like to take up. As we grow older in surgery, we should increase our efforts to do ideal work. The worst class of cases that the surgeon is called upon to treat are those coming for secondary operations, the result of incomplete work. Wherever it is possible, work should be completed in a manner that will leave as few complications as possible.

In regard to the remarks of Dr. McGraw, suggesting that we should make a lateral anastomosis with the McGraw ligature following the constriction, the method does not appeal to me. This would leave an artificial anus at the hernial site, and I do not believe that this anus would close. By doing a primary resection and an end-to-end anastomosis followed by radical operation, the work is completed. The results gotten in the cases reported demonstrate that this can be done with low mortality rate. At any rate the mortality will be lower than that which accompanies the primary enterostomy and the secondary operation that must be done to close this artificial opening.

In regard to the supplementary abdominal incision, I am convinced that it is a good thing, and carries with it no additional danger. Dr. Deaver has stated that he believed the method a good one in the treatment of femoral hernia. If it is good in femoral hernia, it is equally as good in inguinal hernia. I have found in most of these cases that the bowel impairment was not found in the hernial sac, but that frequently there was a wide mesenteric thrombosis extending beyond point of

constriction. In many of these cases the bowel has been found filled with infected material, and drainage has been uniformly practised, the drainage being done with a glass tube placed in the vesico-rectal pouch followed by the Fowler posture.

DR. HALL.—Objection was raised to the second incision for fear that it would become infected, suppurate and hernia grow. How many of these cases had suppuration at line of incision?

DR. BROWN.—In a few cases there was suppuration in the median incision. This I attribute to the fact that through and through closure was made. In the majority of cases we made a long incision and closed through and through to save time. The pressure necessary to close the wound, especially a long wound by through and through sutures, makes suppuration more frequent, than where wounds are closed with less tension.

INTESTINAL OBSTRUCTION.

BY

LEWIS C. MORRIS, M. D.,

Birmingham.

INTESTINAL obstructions offer an unusually attractive field to the abdominal surgeon at the present time on account of the large mortality shown by statistics in the past and because this mortality theoretically should be reduced to nil (excepting, of course, those cases caused by malignant growths), if the appropriate treatment be adopted at the proper time. So grave has been the outlook for these cases in the past that the term "locked bowels" carries to the mind of the average layman even to-day the idea of almost certain death. This is one of the chief reasons for the strong opposition which so frequently confronts the surgeon when operation for the relief of this condition is advised.

This high mortality rate can only be explained by the fact that operations are too frequently delayed until a time when the resistance and vitality of the patient have been so lowered by toxic absorption, and pathological changes have progressed to such an extent that recovery is impossible. This delay in operating for the relief of ileus is due to one of two things. First, assuming that a diagnosis has been made, the adoption of expectant treatment with the hope that this treatment will relieve the condition or that spontaneous recovery will follow; or, second, a delay resulting from a failure to establish a positive diagnosis,

It is, I think, unnecessary to enter into any discussion of the unwisdom of pursuing an expectant treatment after the diagnosis of ileus has been made, for the cases of intussusception and volvulus which recover spontaneously or respond to any treatment other than operative constitute the rare, the very rare, exceptions, and in the prosecution of this treatment precious time may be lost, adding material jeopardy to the operation which becomes imperative later on.

The delay in establishing a positive diagnosis, and the con-

sequent delay in operating, probably contribute more to the high mortality than any other factors. A large percentage of these cases present classical symptoms which preclude the possibility of doubt as to the nature of the trouble almost from their very incipiency, but on the other hand there are also a considerable number of cases in which the diagnosis within the first twenty-four or forty-eight hours is by no means clear, and it is in the management of this latter class that we must look for the improvement in our statistics. In order to bring the matter of symptoms and diagnosis more clearly before you, I beg to report six cases which have come under my care within the last ten months.

CASE I.—Miss T., age 12 years. I first saw this patient at 8 P.M. October 28, 1904, in consultation, and received this history: Patient had been in excellent health prior to eleven days before, when there had developed suddenly an intense abdominal pain, associated with violent nausea and vomiting. This poor little girl was a member of a family who were disciples of Christian Science, and her sufferings had been without any alleviation whatever, except the scant solace which may have been afforded her by the prayers of the prophets of her father, until two hours before I saw her. At this time her condition had become so alarming, that at the advice of the "healer" a physician was called. During the whole eleven days the pain, nausea and vomiting had continued without remission, no nourishment or fluid of any kind had been retained for longer than a few moments at a time, and there had been no bowel movement, except the emptying of the lower bowel, which was accomplished on the second day by an enema administered clandestinely by an "unbeliever" who was staying in the house.

Subsequent enemata had been ineffectual. At the time I saw her the pulse was 140 and weak. Temperature 100½. The upper abdomen was decidedly tympanitic, but this condition was distinctly less marked below the umbilicus. The eyes were hollow and injected, and the expression was an admixture of anxiety and despair. The attending physician had made a diagnosis of a high intestinal obstruction, which I verified, and an immediate operation was advised as a desperate chance and almost as a forlorn hope. Two hours later I operated at the Hillman Hospital under chloroform anesthesia. Between the time I first saw her and the beginning of the operation, strychnia hypodermically had been administered freely, and the subcutaneous

injection of normal salt solution was begun synchronously with the operation. An incision was made in the mid line, beginning one-half inch below the ensiform cartilage and extending to within an inch of the umbilicus. On opening the peritoneal cavity a large amount of clear serous fluid escaped and the coils of intestines above were observed to be quite considerably distended. Not so much so below. A rapid examination revealed an internal strangulation of a loop of the jejunum in the foramen of Winslow. The constriction was relieved and the loop of gut liberated without difficulty. The circulation returned rapidly to the portion of intestine which had been strangulated, so the cavity was hurriedly flushed with salt solution and the incision closed by interrupted silk worm sutures, leaving about a liter of salt solution within the cavity. The pulse was distinctly better at the close of the operation than when it was begun. Recovery from the anesthetic was prompt; there was no recurrence of the nausea and vomiting, and flatus was passed freely per rectum. About fifteen hours after the operation the pulse became weaker and more rapid, and death followed six hours later from exhaustion, despite all efforts to stimulate hypodermically and to nourish per rectum.

This was a case in which an early diagnosis could have been made without difficulty, and in which an early operation would certainly have been attended with success. It is interesting to note that this strangulation, which had existed for eleven days, producing such grave constitutional symptoms, did not destroy the integrity of the strangulated gut.

CASE II.—Mrs. C., age 36. Health had been perfect until the night of December 3, 1904, when there was a sudden onset of severe abdominal pain, with nausea and vomiting. Temperature was subnormal, and pulse 96. A hypodermic of ¼ grain of morphia afforded only slight relief, and despite the administration of a potent cathartic, obstipation was complete. Enemata given on the morning of the 4th were ineffectual, and the nausea and vomiting continued in paroxysms. Temperature remained subnormal, and pulse 100. The pain at this time was referred principally to the right iliac region; there was a slight rigidity, but nothing definite could be made out. Fifteen hours after the beginning of the attack there was a leucocytosis of 9,000 plus. There was no history of any previous attack of appendicitis. A diagnosis was made of a probable appendicitis and an immediate operation advised. I operated twenty hours

after the beginning of the attack and found a volvulus of the ileum near the ileocecal junction. There were no adhesions and the appendix was perfectly normal. This patient made a prompt and uninterrupted recovery.

The point in this case is whether I should have operated as early had the site of maximum pain been elsewhere than in the right iliac region, and I wish to affirm that in such a condition as this, the indications for operation are positive, regardless of the location of greatest pain.

CASE III.—Mrs. S., age 38. Seen in consultation on January 4, 1905. Had had for several years an enlargement just below the left groin, which would at times become painful. Had been told that this was an enlarged gland. Five days before I saw her, after eating a hearty meal of rather indigestible food she was taken suddenly with intense pain over the region of the tumor, became nauseated and began vomiting. Within a few hours the pain assumed a colicky paroxysmal character and involved the whole of the abdomen. Her physician was called, morphia given hypodermically and a cathartic prescribed.

On the following day the bowels acted fairly satisfactorily, but the enlargement below the groin continued to be exceedingly painful. Hot poultices were applied and on the following day, three days before I saw her, her physician states that there was redness and pitting on pressure over the tumor. An aspirating needle was inserted at this time into the tumor and a few drops of reddish brown fluid withdrawn. Following this, the paroxysms of pain became more intense, and nausea and fecal vomiting became almost incessant. When I saw her the pulse was 130, temperature 100. Abdomen considerably distended and generally sensitive. A diagnosis was made of strangulated femoral hernia, and operation was performed at the patient's residence an hour later. The tumor was found to consist of a punctured knuckle of gut, a process of omentum, offensive fecal fluid and pus. There were firm adhesions, shutting off the cavity of the sac from the general peritoneal cavity.

Both gut and omentum were gangrenous. The opening in the gut was caught and held with a pair of clamps, so as to prevent leakage, and after cleansing the wound as carefully as possible, the omentum was resected. Another incision was made above Poupart's ligament, and after breaking up adhesions the necrotic gut was brought out through this latter opening and twelve inches resected. As the patient's condition was ex-

ceedingly ragged at this time, a rapid anastomosis was made by means of a Murphy button, and two drainage wicks were left in; one in the opening above and the other below Poupart's ligament. The recovery was uneventful, except that on the fifth day after operation the patient experienced a rather acute sharp abdominal pain, which she said she knew was due to the slipping of the button. On the dressings that night there was a distinct fecal discharge, which kept up for forty-eight hours, after which there was no further trouble.

CASE IV.—Mrs. G., age 28. Operated on January 24, 1905, for a perforated appendix, with free pus in the general peritoneal cavity. The appendix was removed at this time and the toilet of the cavity thoroughly performed. Six days later an accumulation of pus was drained from the left hypochondriac region under the spleen and another from down in the pelvis. After the second operation there was the most enormous abdominal distention I have ever seen. The use of the rectal tube, of all kinds of enemata, including the alum enema of Harding, and the most potent cathartics were utterly ineffectual. There was evidently present a dynamic ileus, resulting from an over-distention and a consequent paralysis of the intestine. There was a loop of gut accessible through the drainage opening, so I selected the most convenient place for the establishment of a fecal fistula and inserted the smallest size trocar and cannula.

The escape of gas was enormous, and there was a proportionate relief experienced by the patient. Shortly after this procedure, the bowels began moving naturally, and flatus was expelled per rectum. On the following day, however, the meteorism had reaccumulated to such an extent as to cause the patient serious inconvenience, and in compliance with her urgent request, I again tapped the gut with the same result. This was done on three successive days, after which there was no further trouble. This patient returned home from the hospital and was up and around in a wheel chair, when she contracted pneumonia in the ninth week after operation, and died a few days later.

The interesting features of this case are, first, the existence of a dynamic ileus caused by an overdistention, which in turn resulted from a rather extensive involvement of the peritoneum And second, the fact that the tapping of the gut on three successive days not only relieved the urgent symptoms, but was not followed by the slightest leakage.

CASE V.—Infant, age 8 months. Had been apparently well

until one o'clock A.M., May 5, 1905, when it awakened crying, and after nursing, vomited. It continued to show evidences of violent paroxysmal pains, so the mother administered a free dose of castor oil. The crying and restlessness continued until I saw the baby about eight o'clock. I was told that the bowels had acted several times; evidently from the oil, as the mother said it could be distinctly observed in the movements. The temperature was 99, pulse 120, abdomen slightly tympanitic and soft. Child looked ill. The colon was ordered flushed with normal salt solution and 1-10 grain doses of calomel with soda were prescribed every half hour. Later on in the day there were frequent movements consisting of blood and mucus, accompanied with a considerable amount of rectal tenesmus.

At six o'clock in the afternoon, when seen again, the temperature was 104, pulse 140, vomiting had been practically continuous all day, bowel movement was frequent and consisted of blood and mucus, and while a satisfactory examination was impossible on account of contraction of the abdominal muscles still, I thought I could make out a mass in the left lumbar and left iliac regions. Rectal examination was negative. A diagnosis of intussusception was made and an operation performed an hour later. There was found to be an invagination of the cecum into the ascending colon, and in turn the ascending colon into the transverse colon and the transverse colon into itself, so that the cecum lay in the upper part of the sigmoid flexure.

Moderate traction on the ileum was ineffectual in reducing the intussusception, but by a milking movement upward of the upper sigmoid and descending colon it was reduced without difficulty. A part of the cecum and the adjacent portion of the ileum were rather blue, but the circulation returned fairly satisfactorily after a few minutes, so they were dropped back and the incision closed. After the operation gas was passed freely per rectum, but the temperature remained high, and the child died eighteen hours after operation, with a temperature of 106. At post mortem there was found to be no peritonitis and the intestinal canal was patent throughout. So death in this case was evidently due to an infection within the alimentary canal. Had operation been done earlier I think it possible that this patient's life might have been saved.

CASE VI.—J. A., age 7. In August, 1904, I operated on this child for an acute appendicitis. The appendix contained pus and was surrounded by rather firm adhesions. These were

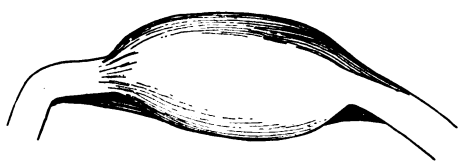
broken up and the organ removed without rupture. The incision was closed in layers, and recovery was prompt and complete. At the time of this operation there were noticed a number of enlarged mesenteric glands. On the night of June 22, 1905, after having eaten rather inordinately of ice cream, this child was taken suddenly with severe abdominal pain and nausea and vomiting. The mother gave three grains of calomel in one-grain doses, and followed next morning with a soapsuds enema, which was effectual. The nausea, vomiting, and paroxysms of abdominal pains, however, continued. I saw the child at ten o'clock on the morning of the 24th, in consultation. The pulse was 100, temperature 99. Abdomen very slightly distended and not particularly sensitive. The bowels had only acted once since the administration of the calomel, and that was in response to the enema. The child's expression was good and he did not appear very sick. The vomiting was at considerable intervals, and would usually occur after taking water.

While the symptoms at this time were rather indicative of an obstruction, still the condition of the child was so good that I decided to wait. When seen at five o'clock that afternoon the diagnosis was positive. Nausea and vomiting had continued all day and the vomitus had become stercoraceous. Abdomen much distended and pain intense. Operation was performed three hours later; this time being consumed in moving the child a distance of eight miles to my private hospital. A loop of the lower ileum, eighteen inches in length, was found strangulated by a strong band of adhesions, against the right side of the vertebral column. Whether these adhesions resulted from the inflamed mesenteric glands, which were still present and about the same size as when the appendectomy was done eleven months before, or whether they were the result of an old inflammation around the appendix, I do not know. The strangulated loop was enormously distended and very much discolored.

After severing the adhesive band, the distention was immediately relieved and the circulation gradually returned. While waiting for the re-establishment of the circulation, it was noticed that at a point corresponding to about the middle of the strangulated loop there was a circumscribed spot opposite to the mesenteric attachment about the size of a silver quarter, which was a deep blue, and which made a marked contrast to the bright red of the remainder of the gut, through which the blood was beginning to course. I thought at first that this was a

localized area of necrosis, but soon observed that it was increasing in size and that it was an intramural hemorrhage. After watching it for a few minutes, the discoloration almost completely surrounded the gut for a distance of about two inches, but as it did not interfere with its patency as proven by the fact that the finger could be invaginated without difficulty, and as it showed no advance, it was dropped back and the incision closed.

The convalescence was rapid and uneventful, and on the seventh day after operation the condition was so perfectly satisfactory that I consented to the patient being carried home on the street car in his father's arms. A half hour after reaching home the boy began to vomit, and complained of a severe abdominal pain. He had been eating rather liberally, and my first thought was that he was suffering with an acute indigestion. However, when he got back to the hospital, his condition was exceedingly suggestive of ileus. The abdomen had become some-



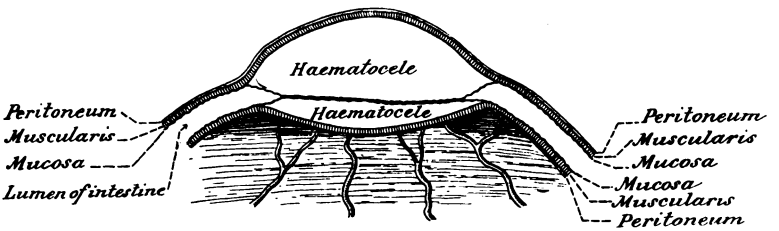
MORRIS.—Intestinal Obstruction. Fig. 1, Case VI.

what distended and was generally sensitive. The temperature was 97, the pulse 110. He was vomiting a greenish material at frequent intervals. Enemeta were given, and at first were returned colored by fecal matter, but later were absolutely ineffectual.

He was watched for a few hours, during which time all of the symptoms became aggravated, and the vomitus assumed a fecal odor. The abdomen was opened again through the incision made a week before and this condition was found: at the point at which the intramural hemorrhage had been observed the intestine presented a spindle-shaped enlargement about five inches in length, at its center about three times the normal circumference. It was a bluish-black color, and throughout the entire extent of the enlargement the lumen of the gut was entirely obliterated. The intestine above the enlargement was distended, below it was collapsed, and no gas could be forced through. It was evident that there was present an intramural

hematocele of either the submucus or the subperitoneal type which had dissected up the layers of the intestinal wall, and by encroaching on the lumen had caused its complete obliteration.

The hematocele was quite tense, indicating a considerable degree of pressure, and the peritoneum covering it was rather lusterless, so a resection was decided on. Nine inches of gut were resected, and an anastomosis accomplished by means of a Murphy button. The button was passed on the sixth day and



MORRIS.—Intestinal Obstruction. Fig. 2, Case VI.

the child was up in two weeks. An effort to forcibly invaginate the finger into the lumen of the resected specimen ruptured the hematocele externally through the peritoneal covering at about its center, and opposite to the mesenteric attachment. The hemorrhage was found to be of the submucus type, and evidently the pressure of the hematocele had caused a weakening in the intestinal wall at a point farthest from the entrance of the bloody supply.

CONCLUSIONS.

I believe that if all cases of intestinal obstruction could be given the benefit of operation within the first twenty-four hours, the mortality in this condition would be completely revolutionized. The fact that some cases do exist for days and are relieved by operation leads us in cases in which there is an element of doubt, sometimes to delay surgical intervention until the chances for recovery are materially lessened. Occasionally a positive differential diagnosis is exceedingly difficult, but the conditions from which a differentiation cannot be positively made are almost invariably equally as imperative in their demands for surgical intervention as would be the existence of an ileus. Among the most common of these conditions may be mentioned appendicitis, gallstones, infected gall bladder, floating kidney with a twisted ureter, perforated gastric ulcer, ruptured extrauterine pregnancy and salpingitis, all of which when

giving rise to symptoms that could lead to confusion in the diagnosis of ileus would positively indicate operation. The bare possibility of a mistake in diagnosis in conditions in which no intraperitoneal operation is indicated (such as a calculus passing through the ureter), should not act as too serious a restraint, for such a mistake would of necessity be most rare, and an abdominal section in such a condition could do no possible harm.

Sudden severe abdominal pain should always suggest the possibility of intestinal obstruction, unless clearly due to some other cause. When associated with nausea and vomiting, and when it does not respond to moderate doses of morphia, hypodermically, the condition is still more suggestive. And permit me to say by parenthesis that the frequent administration of large doses of morphia in cases where a possibility of ileus exists cannot be too severely condemned, as it simply masks symptoms and only too frequently leads to unnecessary and dangerous delay. Sudden severe abdominal pain, associated with nausea and vomiting plus obstipation which does not respond within a few hours to potent cathartics and stimulating enemata, constitute a condition in which the indications for operation are positive. The inability to isolate a distended loop of intestine, the presence of shock and stercoraceous vomit go to confirm the diagnosis, but should not by their absence cause undue delay in operating.

As a general proposition, the more sudden and violent the storm of symptoms initiating the conditions, the more imperative the indications for early operation.

In conclusion I wish to reiterate that after the diagnosis of ileus has been made, the adoption of treatment other than surgical with the hope that it may effect a cure, is utterly unjustifiable, and that procrastination, based on the hope of a spontaneous recovery, is in my opinion pretty nearly criminal.

DISCUSSION.

DR. ROBERT T. MORRIS, New York.—I quite agree with the essayist that on account of the difficulty in making an accurate diagnosis, too much time is often lost, and the case goes on to a dangerous stage.

Within the past forty-eight hours I have operated on two patients with intestinal obstruction, one of whom was kept under observation for six days, and the other ten days, for an accurate diagnosis by their physicians, although the diagnosis

of obstruction had been made some time previously. Within forty-eight hours I operated on both patients, and made a diagnosis of gangrenous appendicitis, with adhesion of the bowel, and the appendix in the pelvis in both cases. No doubt there was difficulty in making a diagnosis on the part of the physicians who had seen the patients; but the cardinal symptoms pointing toward intestinal obstruction should have been sufficient to call for an immediate operation, no matter what the other concrete points in the diagnosis may have been.

Again, every patient with intestinal obstruction stands in one tremendous danger. What is it? Too much surgery. Every patient stands in danger of too much surgery with intestinal obstruction. These patients are on the verge of shock, or readily go into the condition of shock for two special reasons: first, the sympathetic nerve centers are more or less paralyzed by the toxins from the fermentation of saprophytes in the bowel; the toxins from the saprophytes causing fermentation in the bowel have overstimulated the sympathetic nerve centers, and they are ready for the stage of paralysis. Again, peristalsis of the bowel is inhibited by obstruction. Few of us realize that as the lungs are in constant motion, as the heart is in constant motion, so the bowel is in constant motion. The bowel, as one observes it in a rabbit or dog, freshly opened, is in constant motion, unceasing, like the movement of the heart, the movement of the lungs. The bowel is in as constant motion as is the heart. It is in as constant motion as the lung. Inhibit that peristalsis and you shock the vasomotors; you shock the sympathetics which are controlling the muscularis of that bowel. Therefore, you have two conditions which favor shock in these cases, two principal conditions favoring the development of shock, and you must be very careful not to add a third condition—too much surgery. Shall we open the abdomen at the point of greatest pain? Not necessarily. We may have to make a long incision to get at the real point of obstruction, and pain is reflected to so many points from various sympathetic centers, that it is extremely difficult to localize the point of obstruction from the point of greatest pain. Neither of the patients I operated on yesterday had any point of greatest pain.

Not long ago, in a distant city, I was called to a stone house, in which two ancient maiden ladies resided. They lived back from the road, among pine trees. It was a dark, secluded spot. Few people knew that they lived there. Few knew that they were alive. The physician who called me did so for intestinal obstruction in one of these women. The abdomen was distended. The patient was bright and alert. I asked her where the pain began. She said in her right side. I tried to get her to map out the point of greatest pain, and she said it was on the right side, high up. I thought of gall-bladder adhesion; I thought of incarceration in the foramen of Winslow; I thought

of a number of things that might occur here. I made an incision and extended it clear down the side of the abdomen to the other side, and found a little bit of incarcerated femoral hernia, not larger than a peanut, which was the cause of the trouble. She died from shock. Immediately after the operation I said to her sister, "I was misled by the point of pain; your sister said it was here (indicating). I have had to do an unnecessarily extensive operation. The real obstruction was at this point (indicating)." She said, "We knew all the while where the trouble was, and I myself would have told you that it was far away from that point (vulva) as possible." This is the sort of thing we have to consider.

This case illustrates that we should not always consider the point of greatest pain. If possible, and we can generally do this, let us make a diagnosis of obstruction, and to avoid an attack of surgery of which the patient may stand in danger, we may use a short incision. We may open at a small point in the median line, not more than an inch or two, through which we may pass loops of bowel and in this way localize the point of obstruction. If we cannot localize the point of obstruction through one short incision, make another short incision instead of a long one, and, if necessary, two or three more short incisions, for the purpose of avoiding shock, which occurs from long incisions and too much exposure of bowel. My practice of late years has been to make a number of short incisions in tracing an obscure point of intestinal obstruction rather than do a severe extensive, wide open operation.

DR. S. SUZUKI, Surgeon-General, Imperial Japanese Navy (by invitation).—Your president has asked me to say a few words on the very interesting subject of intestinal obstruction. While I am not prepared to discuss the subject, I can simply relate a case of intestinal obstruction which came under my observation not long ago. Just before the Russo-Japanese war, two years ago, I had a case of a seaman, who was sent from one of our men-of-war to a neighboring hospital. At first we thought it was a case of appendicitis, as he had pain in the region of the appendix. His temperature varied from 38° to 39° C. There was some distention of the abdomen, and we thought we would make a blood count in order to make the diagnosis sure. To be short, after all, the patient was subjected to a laparotomy. An incision was made in the median line, and after the abdomen was opened we found two or three bands encircling the small intestine. We cut these bands in two places and were enabled to release the obstruction. On further investigation we found a continuous band in the wall of the intestine, which we dissected away, and finished the operation. We found, in this case, some accumulation of pus near the site of the appendix. We examined the appendix very carefully, but could find no inflammation of it, nor of the cecum; but just behind the peritoneum, in the wall of the in-

testine, there was an accumulation of pus which we removed carefully, then sutured and closed the abdomen. The patient recovered.

Some time ago I was talking with Dr. Stillman, of San Francisco, Professor of Surgery in the Cooper Medical College, who has written a good deal about appendicitis. I called his attention to the point that in Japan sometimes these cases come in a group; that is to say, we may not have a case of appendicitis for months, and then within a comparatively short time we may have three or four or five or six. I understand the same thing occurs in America. I have wondered if any of you gentlemen could tell me what is the cause of that. It surely cannot be epidemic.

I wish to draw attention to one other point. Usually the symptoms of appendicitis in the Japanese are quite clear. Sometimes we find a man who has practically no fever, or for a few days only slight fever. There may be very little pain, or very little tenderness in the right iliac region. The pulse seemingly is all right; the tongue is clear, and everything looks all right, and still sometimes we find a very serious case, and it is a question whether we should operate or not. As Dr. Morris has said, we must be careful not to do too much surgery, and yet we must be unusually careful lest we lose the patient's life.

Dr. Henry Howitt, Guelph, Canada.—For a surgeon in a limited field, I have had considerable experience in intestinal obstruction. I desire to touch one or two points briefly. If I understand the statements made by Dr. R. T. Morris correctly, he considers all the obstructing bands near the cecum to be the result of previous inflammatory action. In regard to this point he is evidently mistaken, for in the absence of a history of appendicitis or other inflammatory attack of the peritoneum, the obstructing band at this part is almost invariably the remnant of a Meckel's Diverticulum.

Dr. Morris objects strongly to a large abdominal incision in these cases. It is my opinion that in the great majority of instances in acute obstruction of the bowel we have quickly pronounced distention. When there is tension of the abdomen it is impossible, through a small incision, to run the bowels between the fingers to the obstruction, without loss of time and more justifiable irritation of the peritoneum. In this condition I always advocate a large incision, evisceration and collapse of the distended coils by punctures when necessary. By these means the obstruction can be found without delay and, in my opinion, with much less irritation and shock than by any other method. The eviscerated intestines should be kept moist and at a proper temperature by means of sterile gauze and irrigation.

By adopting this method I have been enabled to save five consecutive cases of intussusception in infants under one year of age, and four consecutive cases of acute perforated gastric

ulcer with general infection of the peritoneal cavity. I firmly believe that all these patients would have died had I tried to locate the seat of the trouble through a small incision.

The essayist, in his admirable paper, has drawn our attention to a very important matter which I desire to emphasize, namely, never close the abdomen in a case of intestinal obstruction without emptying the distended coils of the bowel above the seat of obstruction. In my opinion this is one of the most important points in the successful treatment of bowel obstruction.

DR. JOHN YOUNG BROWN, Saint Louis.—There is one point that I would like to discuss in connection with the excellent paper read by Dr. Morris, and that is the danger of doing too little. Dr. Robert T. Morris has forcibly emphasized the dangers of doing too much, but I think in many of these cases we can do too little.

The one case in particular that emphasizes this point very forcibly was the case of the child in which an intramural hematoma was found, and subsequent resection of the intestine was necessary. I believe that in all cases of intestinal obstruction where we have a strangulated loop of bowel, and in all cases of strangulated hernia, if there is the slightest question about the integrity of the gut, it should be resected. The literature is literally full of cases in which taxis was resorted to, and the hernia has been supposedly reduced, but the patients afterward died from intestinal obstruction. We have many cases similar to the one reported where necrotic spots were found on the bowel, and the gut was returned with some degree of temerity, followed by disaster. I make it a uniform practice, whenever there is any question as to the integrity of the bowel, to do thorough work at once.

I agree fully with Dr. Morris that just as little should be done as possible consistent with thorough work.

DR. MORRIS (closing the discussion).—There are three main points on which I wanted to bring out discussion. The first is, that in cases of dynamic ileus resulting from over distention, and this condition occasionally occurs in infections in which drainage has been used, the best treatment is to tap the gut at the most accessible point with a small trocar and cannula. This, of course, is to be resorted to after cathartics and enemata have failed. This procedure may be done without fear of a fecal fistula and in the case reported it certainly afforded great relief.

The second point is to emphasize the importance of early diagnosis and early operation in intestinal obstructions, for I believe that it is to this that we must look for the improvement in our statistics.

And the third point is, to ascertain if any of the Fellows of this association have seen cases of obstruction caused by intramural hemorrhage. I can find no cases recorded in the literature.

DIAGNOSIS.

BY

JOHN B. DEAVER, M.D.,

Philadelphia.

"He who would cure well must diagnose well"

THAT the correct diagnosis of a surgical disease is a matter of paramount importance, is readily admitted by nearly every one; but while it is thus theoretically acknowledged, there are, I regret to say, only too many surgeons who do not put into practice their theories—who do not practise what they preach. It is, of course, unnecessary for me to say that I have not the presumption to attempt to teach the accomplished surgeons of this society the principles of diagnosis; but what I had in mind to put before you this evening is the tendency, which it seems to me exists at present, of making our diagnoses (or of not making them) by means of a consultation of specialists—hematologists, bacteriologists, skiagraphers, and microscopists—or relying more upon the findings of these specialists instead of by a minute, painstaking and complete physical examination, together with a careful study of the clinical history of the patient. Too much stress cannot be laid upon the latter.

Pathognomonic symptoms are one by one disappearing before the advance of medical and surgical science, but some of our pathologists and bacteriologists are still ready to give us their diagnoses based solely upon their special findings, with the utmost disregard of the physical examination and of the natural history of the disease in question. There are, to be sure, some honest pathologists who are unwilling to diagnosticate a sarcoma merely from a study of the suspicious tissue under the microscope. Indeed, it is my impression that the more experienced the pathologist becomes the less able will he be to declare with unerring certitude that a certain aggregation of round cells, atypically arranged, is a sarcomatous neoplasm, and not merely a mass of granulation tissue. A conscientious

pathologist, such as I describe, will merely report his histological findings and will leave it to the surgeon to confirm or disprove the suspicion of malignancy by reference to the clinical side of the disease.

Diagnosis by Exclusion.—It is manifestly impossible to exclude all but one organ or portion of the body, and therefore a diagnosis by exclusion is an illogical and unscientific method of making a diagnosis. It should always be the last resort. Diagnosis by inclusion, as it is called, in which the organ producing symptoms is first considered, and all other parts of the body which may bear a pathological relation to it are subsequently examined, is a much more rational procedure. And although, as we all know, the primary seat of disease is not always the same as that which produces symptoms, yet in ninety-nine cases out of a hundred it is the primary seat of disease that requires treatment. Familiar examples of this fact are found in cardiac lesions producing gastric symptoms, or dropsy; eyestrain or uterine displacements producing headache; and infected wounds of the hands or feet producing lymphangitis. So that this method is much more apt to lead us to the detection of the diseased organ than is that of diagnosis by exclusion.

Yet this tendency to base a diagnosis solely, or almost entirely on laboratory findings, is widespread and becomes constantly more prevalent. But the various portions of the human frame are not so dissociated that they can be discussed as separate entities in diagnosis any more than in treatment. Looking for a disease in the body of a patient is not like looking for a sick cat in a room full of felines. In the latter case it will not be difficult to detect the diseased animal by examining and putting to one side all who are healthy; but when the human being becomes ill he is more or less deranged in every part of his anatomy, and it is the patient, not the disease, that we must treat.

The reason that this fondness for laboratory diagnosis is so widespread, is, I think, because the students of medicine are taught laboratory methods to an undue extent. The constant cry in all medical colleges at the present day is for funds to build and equip laboratories. The students are forced to spend hours at a time in the laboratories studying the products of diseases or the causes of disease, while the time formerly allotted to the study of the disease itself is reduced to a minimum or is altogether

expunged from the roster. Instead of drilling into the minds of the students the eternal principles of surgery, the faculty sends them into the laboratory to the end that they may become adepts in the art of blood counting, or may be rendered capable of distinguishing between consanguineous tribes of microorganisms. This is a fatal mistake. The students will become perfectly familiar with the microscopical appearances of the anthrax bacilli, of the tubercle bacilli, will readily distinguish the colony of the streptococcus pyogenes from that of the staphylococcus albus or the colon bacillus; but they will not know a case of anthrax when they see it, they will not be able to distinguish between a phthisical lung and an acute bronchitis, they will not know an abscess from an aneurysm, a sarcoma from a gumma, nor a case of erythema nodosum from simple bruises on the shins.

These methods of study and diagnosis cannot be carried by the student away with him to his country home; they cannot be conveyed from one patient's house to another; they are never available in emergencies. And while I earnestly advocate that every young physician returning to his country town should take a good microscope with him, and should examine his patient's blood and urine on every suitable occasion, yet I am thoroughly convinced of the fact that laboratory diagnosis, as it is called, requires now and ever will require, a well-equipped laboratory to render it of any service whatever; and until every physician can possess his own laboratory, or can have a position on the staff of a hospital so equipped, it is worse than useless, it is a criminal waste of their time, and a menace to their future patients, to endow students with no skill but in such mechanical methods.

Practical instruction in such matters should be postponed for post-graduate courses, or for the period which every well-intentioned graduate spends as hospital resident. Four years are all too short a time in which to learn the principles of medicine and surgery, with a thorough grounding in anatomy, chemistry, and physiology, those foundation stones of medical science. If the principles on which rest the mechanism of blood counting and bacteriology are sufficiently explained, it is no difficult matter to acquire at a later period sufficient manual and ocular dexterity to use with precision the instruments required. Teachers of anatomy have long since ceased to demand artistic dissections as the routine work of the student. They know

that skill in dissection can only be acquired by practice, and they are at present bending their energies towards the practical applications of anatomy to medicine and surgery, and aim rather to show to the students dissections which explain themselves and which will impress certain principles upon their minds. The bacteriologists, the hematologists, and the pathologists should follow their example, and while they show the finished product to the student and explain to him in detail the principles involved, they should not insist upon his repeatedly making with his own hands complicated or elaborate tests or preparations.

Giving Pathology.—A young physician who is a past master in the art of making the Widal test for typhoid fever, but who does not know at what period of the disease it first becomes available for diagnosis, nor that it may remain positive for many years after recovery from typhoid fever, may be a valuable adjunct to the test tubes and Bunsen burners of the laboratory, but will be wofully useless as a medical attendant throughout the disease. One who depends on the skiagraph for the diagnosis of a fracture may very well treat a patient for a Colles' fracture which had healed without deformity years before, while neglecting an overlying tenosynovitis of very recent origin. One who examines the stomach contents with all proper assiduity may, by neglect of proper physical examination, allow his patient to die of spreading peritonitis before discovering that the intestinal tract was perforated. All these, no doubt, are extreme examples, but will serve to elucidate my meaning.

It is thus that the introduction of instruments of precision has done real harm to the medical profession, and has lulled the brains of surgeons to indolent repose, while calling upon their fingers to renewed exertions. Not only does it do harm to the patients, as I have already pointed out, but it tends to lessen the dignity of the surgical profession itself. It is not so very long ago that the barber-surgeon stood by as the learned and lordly physician ordered him to bleed the patient for a malady of which he knew nothing, and to produce a result about which he cared less. The surgeon of the present day who is willing to take his diagnoses ready made; who operates for appendicitis because there are 20,000 white blood cells to the cubic millimeter; who does a gastroenterostomy because the pathologist reports absence of free hydrochloric acid in the stomach; who explores the brain for a tumor because someone

saw a choked disk or who removes a man's tongue because the laboratory report said carcinoma, but who afterward learns that the patient had other lesions of tertiary syphilis on his body—such a surgeon, gentlemen, is on a much lower plane than the barber-surgeon of yore, because this last had no glorious heritage of surgery to look back upon, and was actually himself a step in the evolution of the art of modern surgery.

Diagnosticians.—It does not seem to me that we have at the present day diagnosticians who can vie in diagnostic acumen with the masters of the past. Those who were within my own particular knowledge—Agnew and Ashhurst—rarely if ever erred in the diagnosis of an obscure case, and so convincing were their reasons for the diagnosis that none was so bold as to dispute it. These men and their contemporaries were brought up when microscopes were little used, before blood counts and bacteriology were heard of, and when *x*-rays were an undreamt dream. They had learned the principles of diagnosis as students, and they had studied the course typically pursued by every disease then known to surgical science. As a consequence, when questions of diagnosis arose they could reason from principle to principle, and they could class the disease from the history the patient narrated. They knew what symptoms and signs to look for, what questions to ask, and could anticipate the course the disease had pursued. One of these surgeons having presented to him a patient with a large tumor in the popliteal space, and being told by the patient that another surgeon had pronounced it a sarcoma and had counseled immediate amputation of the hip, could unhesitatingly affirm, as soon as he laid his hand on the growth, that it was a myxoma, and that it could safely be removed by dissection. This surgeon knew the extreme rarity of sarcoma in this situation; his practised touch could tell the difference in feel; and he was confirmed by the history of the case previous to the operation as well as by the successful result of the operation itself. Now the *x*-ray must be used before a diagnosis of osteosarcoma is made. The surgeon who must depend upon the *x*-ray to differentiate between osteosarcoma and osteitis limits his usefulness.

Surgeons such as these would not undertake an operation merely to make sure of a diagnosis. In obscure or doubtful cases they pondered well all the symptoms, studied their textbooks and their case records, returned again and again to the charge, and did not feel that they merited the title of surgeon

until they could rest assured that they had discovered what affection it was which they were trying to treat and could offer their patients a reasonably certain prognosis.

The so-called "snap diagnosis" was never made by such surgeons. They could arrive at their conclusions quickly if need be, and recollected the surgical maxim that it is better to do the second best thing for your patient rather than to let him die while a decision is being reached; but even then they did not jump at their conclusions. They argued from well-grounded premises and reached a logical conclusion. They were not like that surgical assistant of whom Pogge tells the following story. Being taken around to the houses of various patients by his preceptor this young man was struck by the unerring exactitude with which his master discovered the cause of the disease in certain errors of diet. On inquiry he was told by his teacher that it was a very simple matter to know that a man with a bellyache had overeaten himself with dates when the surgeon could see the date stones on the table in the patient's room; or that another's indigestion was due to overindulgence in oysters, when the shells were on the floor beneath the bed. One day, in his preceptor's absence, this assistant was called to the house of a man who had been taken suddenly ill. The young man looked around the room in vain for any remains of food, and was at a loss what to tell the patient ailed him, till beneath the bed he chanced to spy a saddle and bridle; whereupon he taxed the sick man with having devoured a horse, and was promptly kicked out for his stupidity.

Careful surgeons avoid undue haste in diagnosis. They know what fatal errors even the most brilliant surgeons have committed through haste. Every student of surgery should be told the lamentable tale of the well-known Irish surgeon Deas, who, mistaking a femoral aneurysm for a psoas abscess, plunged his bistoury into it. and saw his patient bleed to death before his eyes after two or three powerful spurts of the life stream. And they should remember the melancholy conclusion of this tale, how the heartbroken surgeon, recognizing that the mistake was one of pure carelessness, went his accustomed rounds in the wards with even more than his usual *sangfroid*, but returned to his consulting room that night insane with sorrow, and as he pondered over the tragedy of the day, drew forth his bistoury again and with the calm deliberation of despair opened his own femoral artery and allowed himself to follow his unhappy patient to the grave.

Diagnosis by means of the therapeutic test is another fallacy of the present day; and while I am heartily in favor of delaying operation in certain cases of suspected malignancy until the effect of antisyphilitic remedies have been tried, I nevertheless, think that in some respects the method of diagnosis by the therapeutic test is surgery run mad. Not only do surgeons dose their patients with potash, without taking the trouble to inquire into their past history and without searching the body and examining the bones and internal organs for other manifestations of syphilis, but in various other diseases they perform operations which are nothing more or less than therapeutic tests to make the diagnosis clear. I refer now to exploratory operations in general. To begin with a familiar example, how many surgeons will remove the appendix in cases of vague abdominal pain and discomfort without even the semblance of an attempt to make an accurate diagnosis? If the patient is relieved of his symptoms, the diagnosis of chronic appendicitis is confirmed. If such a result is not obtained, the surgeon is forced to acknowledge that the appendix was not the cause of the symptoms. What else than a therapeutic test in such operating as that? What wonder that modern operative surgery is scoffed at by the layman, when it is so ruthlessly wounded in the house of its friends? How can we operators who are now growing gray in the service of surgery best teach our young surgeons the precious privilege of conscientious operating? Is it not by relegating the exploratory incision to the autopsy table where it belongs, instead of giving it the place of honor at the antemortem operating table? Is it not by cultivating our powers of diagnosis, and by not resting satisfied with our abilities as surgeons until we can tell with a reasonable degree of certainty whether an operation will benefit the patient? In other words, gentlemen, we must not perform an operation merely to ascertain whether an operation is required; we must not resort to the therapeutic test of an exploratory operation.

I well know that there are certain so-called exploratory operations which I myself perform not infrequently, in company with other surgeons who aim to be conscientious operators. These operations are mainly abdominal explorations whose aim is to determine whether a malignant growth can be removed, or whether the remaining days of the patient can be rendered more comfortable by some manner of intestinal anastomosis The term exploratory cannot be used of these operations in

a reproachful sense. We know that our patient has a tumor, and that it should be removed. Its exact size and the extent of its adhesions to neighboring structures cannot be determined without opening the abdomen; and very exceptional are the cases where nothing can be done to better the patient's condition after the abdomen has been opened. These operations are not like those for brain tumor, where the diagnosis rests practically without exception on symptoms alone, there being no physical signs to guide the surgeon in reaching his conclusions with the result that an exploratory operation is first done, in which the skull is opened, and subsequently, when ten days or more have elapsed, if the patient has survived the first intervention, his life is again jeopardized to the end that the surgeon may conduct a physical examination through the opened skull—the result not infrequently being that no tumor at all is found, or if one is found, that it is inoperable, or if operable and removed that the last state of that patient is worse than the first.

One of the most legitimate fields for exploratory operations, in my opinion, is in cases of abdominal injury, to check hemorrhage, or to close rupture of the hollow viscera—these are imperative indications for abdominal section, and in the very nature of the case the undertaking is largely exploratory. The same may be said of the case of a patient suffering from typhoid perforation, or from other acute abdominal inflamations, as those of the appendix and those due to gastric, duodenal, or gall-bladder perforations. In these cases the symptoms of peritonitis sometimes so overshadow the picture that it is not always possible to decide before operation which is the special region affected; but the indications for incision to repair the damage, are sure, and hesitancy or uncertainty on the surgeon's part may mean death to the patient. But no surgeon should have to open the abdomen merely to learn if the patient has chronic appendicitis or gallstones, to discover whether there be pyloric obstruction, or to decide if the patient be or be not pregnant. Such chronic affections as these are the proper field for refinements in diagnosis, and offer the greatest opportunity for the aids which the laboratory affords. While decrying with all the power that is in me the modern tendency to make our diagnoses in the laboratory, I have yet on too many occasions received valuable suggestions from the pathologist's findings to be unaware of what value the laboratory may be when in its

proper place, and when the information it furnishes is properly correlated with the clinical picture presented by the patient.

My endeavor, then, in this short paper, has been, in the first instance, to attempt to place the matter of laboratory diagnosis in its proper light, showing that it is after all only one form of diagnosis by pathognomonic symptoms. I have tried also to make a plea for the more thorough education of medical students in the principles of physical diagnosis, and in the knowledge of the natural history of surgical diseases, while at the same time advocating a postponement of laboratory methods until the former have been completely mastered. I have endeavored to show the real danger which, as it seems to me, exists, of the modern surgeon degenerating into a mere mechanical appliance, subject to the controlling mind and will of the laboratory diagnostician. Yet, while above all things discountenancing haste and carelessness in reaching conclusions, and the judicious resort to the therapeutic test of exploratory operations, I have pointed out what seem to me the legitimate fields of the exploratory incision.

DISCUSSION.

DR. J. HENRY CARSTENS, Detroit.—The subject of diagnosis is a very important one, and while I agree with Dr. Deaver that with the newer methods of examination we are apt to lose that fine power of examination and discrimination in differential diagnosis which we formerly possessed, still I must take issue with him in belittling the efforts of men engaged in other departments of medicine. I deny emphatically that a blood count is not a good thing. I say it is a good thing. and there are many operations I would not dare do without a blood examination By having a blood examination made I am in a better position to tell what the prognosis will be; I can handle the patient better; I know better what to do. I know how to prepare such patients better after having had a blood examination made. Furthermore, I feel that I can approach my patients more safely and can be more judicious in my selection of anesthetics, and the method of operating, if I know all about the urinalysis, the examination of the blood, and the like.

I can do an operation more intelligently if I have had the patient's heart and lungs examined, as well as the stomach contents, and analyses made of the fecal matter. Dr. Deaver knows as well as I do, or any of you, that all these things are aids, and he is making use of them whenever he can. Instead of belittling specialists in other departments of medicine I think we ought to

be grateful to them, as they help us, and we help them. We should work together. If they are hobbyists and think, for instance, that the whole world revolves around hematology, they are not any more so than Dr. Deaver, who possibly thinks that the whole world revolves around the appendix. We all have our little weaknesses. Some men may think that the most important thing from their point of view is the uterus, the stomach, or some other organ. We are inclined to go to extremes when we work in certain lines, and the greatest thing, I think, we have before us to-day is to fight off that tendency of narrowness in one line, and not think that this or that organ is the only thing in the human body.

Dr. Deaver has said many things with which I heartily agree. I agree with him in regard to what he said that students are being taught in the direction of making careful examinations, blood examinations, bacteriological analyses, and the like, to the exclusion of the underlying principles of surgery; but when he goes so far as to belittle these things, and says that they are of no value, then I must disagree with him, because I think they are. He knows as well as you or I that these things are aids to him in his work.

DR. DEAVER (closing the discussion).—I am very glad to have heard Dr. Carstens's criticisms of my paper. However, I must say that he has wrongly diagnosed his case. I did not make the statement that a blood count was of no use. I did say that students were taught how to make blood counts, how to analyze the contents of the stomach, to the exclusion of practical teaching in surgery and in the underlying principles of surgery. If Dr. Carstens has to depend upon a blood count, or any other surgeon, to make an operation, then his usefulness is limited. If I cannot diagnose a case of appendicitis and tell whether or not it is best to operate, by the tactus eruditus, I may as well, when I go back to Philadelphia, change my occupation. If you consult the records of the German Hospital, you will find hundreds and hundreds of operations have been done there by myself every year without paying attention to the blood count. A blood count is made, it is put on record as a scientific fact, but practically it is of little or no use to me in nineteen cases out of twenty.

As to a blood count being an aid in the selection of the anesthetic, I do not think it makes any difference, and I would not hesitate to give patients chloroform regardless of what the blood count indicated.

As to the *x*-ray, I respect it, but in the majority of instances it is of no use to me; and as to its use in carcinoma, I think it is the biggest fraud ever perpetrated on the profession. I have removed from seven hundred to a thousand breasts; I have had the breasts of patients *x*-rayed, and even *x*-rayed after operation, but I no longer do it, because I do those patients an injury.

As to the diagnosis of stone, I have three patients in the

German Hospital who were *x*-rayed, but no stones discovered, yet the patients had nephritic colic. One was sent away on account of the *x*-ray findings; but his physician brought him back and asked that he be admitted again. He had not been in the hospital more than twenty-four hours before the house surgeon said he had a typical attack of nephritic colic. That is one of the three cases. I operated and removed stones from both ureters. I refused to operate on one of the most important women in Philadelphia because I was misled by the *x*-ray findings. That woman went to a neighboring city, was operated upon, and stones were removed from the pelvis of the kidney and ureter. This is a matter of actual experience, and I say these things with all due respect to Dr. Carstens, because there is no man for whom I have a higher regard, but I do not propose to stand before a scientific body like this and not defend myself as to my true position in this matter.

CESAREAN SECTION; REPORT OF AN UNUSUAL CASE.

BY

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THE conditions which call for the classical Cesarean section as the operation of choice over the Porro operation, or over symphyseotomy, are, as a rule, so well defined and the results in properly selected cases and in suitable surroundings are so uniformly good, that it would hardly be justifiable to bring the report of a case before this society, unless such case presents some unusual features, and on this account I hope that the following report may prove acceptable to you.

At 8 A.M., November 10, 1903, I was called by Dr. Standinger of St. Louis, to see a Mrs. R., who lived with her husband's family in two rooms and a kitchen on the second floor of a tenement house. The woman was fifteen years old and a mere child in body and appearance. Labor pains had set in at term on November 7, and the doctor had been in the house sixty hours —namely, from Saturday evening until Tuesday morning. The bag of waters had ruptured Sunday morning; the uterine contractions had been powerful and rather frequent until early Tuesday morning, when they became weak and infrequent, and the patient showed marked signs of exhaustion. The fetal heart beat was strong and regular, about 150 per minute, and could be heard on the right side of the mother's abdomen, below the navel. Vaginal examination showed the cervix retracted over the fetal head; only a small section of the latter had entered the pelvis; the small fontanelle pointed straight to the right, while the sagittal suture ran transversely, and the right parietal bone was pushed under the left one. There was considerable caput, which made the fetal head appear to be better engaged in the pelvis than it in reality was. The doctor had twice introduced the forceps, but he was unable to deliver, and he abstained from making

forcible traction. The patient's temperature was normal. The doctor, a former country practitioner, had evidently been aseptic during the long sixty hours of his attendance, in spite of the unfavorable surroundings. He carried a good-sized copper tank, which he used as a sterilizer or as a bathtub for babies, according to the exigencies of his cases, and he was lavish in the use of bichloride towels on and under the body of his patient.

The woman was now removed to the Washington University Lying-in Hospital; she was given strychnine and some nourishment, and after a few hours' rest she was brought into the operating room at 2 P.M., when the question of how to deliver had to be answered. The pelvic measurements had shown a pelvis too small in all directions. Distance between spines, 21 cm.; distance between crests, 24 cm.; distance between trochanters, 26 cm., and the external conjugate, 18 cm.

Spontaneous delivery, or at any rate delivery through the natural passages, is by no means incompatible with these measurements, but it must be remembered that an accurate knowledge of the dimensions of the maternal pelvis will not enable us, in a given case, to say whether or not the passage of the fetal head through that pelvis will be possible, because, in the first place, we have no means of accurately measuring the dimensions of the fetal head *in utero;* and because, in the second place, the knowledge of these dimensions would not enable us to answer the question in all cases, because we cannot know how far the fetal head will mould and adapt itself to the given space.

Most of us have seen cases of highly contracted pelvis in which delivery was easily accomplished, because the head, by considerable overlapping of bones and by moulding, fully adapted itself to conditions, while at other times we have found heads that would neither mold nor overlap to a reasonable degree; such cause trouble in spite of average measurements of fetal head and maternal pelvis. It is for these reasons, that the history of previous labors in multiparous women, with moderate contraction of the pelvis, is of such vital importance to the obstetrician in determining his course of action.

In women who are in labor for the first time, we lack this valuable guide, and our duty to the patient demands that we give resourceful nature a fair chance. This we do, when we keep infection away from our patient, when we regulate the labor pains, and keep rectum and bladder empty, and when we husband the woman's strength from the very beginning, thereby enabling her

to hold out for two or three days, and in many instances to escape a formidable operation, by a timely molding and descension of the fetal head.

In our case sixty hours of labor had demonstrated that there was a mechanical disproportion between the maternal pelvis and the fetal head, and for twenty-four hours labor had been at a standstill.

Craniotomy was out of the question, because the fetus was alive, and the patient in surroundings which permitted of no major operation. Moreover, even if there had been reasonable assurance of the death of the fetus, the unyielding tender vagina and vulva of the child-wife would have made craniotomy a risky procedure. For the same reason symphyseotomy could not be seriously thought of in our case, while in a multiparous woman under similar circumstances it might have been a reasonable mode of delivery.

The question, therefore, narrowed down to a choice between the classical Cesarean section and the Porro operation. Generally speaking, we are in the habit of resorting to the classical operation in all clean cases, while we reserve the Porro operation for the infected cases, and those complicated with certain forms of uterine neoplasms.

Could we consider our case a clean one? The membranes had ruptured forty-eight hours ago; the patient had been in unsanitary surroundings; repeated attempts at instrumental delivery had been made and meconium had discolored the amniotic fluid.

Usually such a case is infected, but considering that our patient showed normal temperature at eight o'clock in the morning, that her temperature was still normal at two o'clock in the afternoon, after she had rested and was prepared for operation, and in view of the exceptional care displayed by her attending physician during hi s sixty hours' attendance, I determined upon the classical operation and that the more readily because on the operating table the fetal heart-beat was found to be about 100, and there was additional escape of meconium. The chances of securing a viable fetus seemed doubtful, and the tender age of our patient made the mutilating and sterilizing operation of Porro especially appalling.

The abdomen was opened in the usual way; the uterus was rolled forward and the intestines were protected by a liberal gauze-packing; an elastic ligature was placed loosely around

the neck of the uterus, while the broad ligaments were compressed by an assistant; the womb was opened by a long incision in the median line, reaching down to the membranes; the placenta was found in front and to the left; placenta and membranes were detached and the latter were ruptured over the left knee of the fetus, which was seized, and the child was quickly extracted; the cord was cut between two artery clamps; the child passed over to anotherassistant, and placenta and membranes were removed. Placenta, membranes, and umbilical cord all showed the characteristic yellowish-green discoloration due to the escape of meconium and its mixing with the amniotic fluid. There was very little hemorrhage; the uterine cavity was wiped dry with gauze-sponges and the uterine wound was closed by six or seven sutures of Van Horn's twenty-day chromicized catgut, which were placed one centimeter apart and which did not include the decidua nor the peritoneum; the latter was closed by a running suture of plain catgut and the abdominal wound was closed by three running sutures, consisting of plain catgut for the peritoneum; twenty-day chromicized catgut for the fascia and ten-day chromiced catgut for the skin.

The patient was put to bed at 2.30 P.M., her temperature was then 98.6; at 7 P.M. it was 100°; at 10 P.M., 103.4, and at midnight 105°, while the pulse was 140 and the respirations 30. By 9 A.M., November 11, the temperature had declined to 100, at which height it remained with slight variations for two days, when it became normal. The patient nursed her baby, and made an uneventful recovery.

The baby, a boy, weighed 7½ pounds, and showed average proportions. The shape of the head corresponded to the findings of the vaginal exploration during labor. The scalp showed two pressure marks of a yellowish-green appearance, oval in shape, and about two centimeters in the long diameter; one was situated over the upper anterior corner of the right parietal bone, while the other was found farther back and lower down over the left parietal bone.

The child was deeply asphyxiated. After the air passages were freed from the aspirated foreign substance, it took over one hour of artificial respiration before the child drew its first breath. Contrary to expectation it improved from day to day; a line of demarcation formed around the pressure marks; the dead tissue dropped out on the fifth and sixth day respectively, and the wounds healed by granulation.

Most cases of deep asphyxia with aspiration of meconium and other foreign substances, and requiring artificial respiration for an hour or more, which have come under my observation have been taken on the third or fourth day, with a fatal foreign body pneumonia.

DISCUSSION.

DR. ALBERT VANDER VEER, Albany.—The paper read is certainly a valuable contribution to the subject, and I only wish to speak of one point. With a gravid uterus, and delivery effected in the manner in which it was in this case, personally I should prefer making an incision across the fundus of the uterus from one corner to the other, thus doing away with any ligatures or compressing the broad ligaments in any way. The hemorrhage would be comparatively slight; the fetus can be delivered quickly, and the placenta delivered immediately, and with the contraction of the uterus that takes place the amount of bleeding is scarcely perceptible. The operation in this way is shortened very materially in regard to time, and I believe this is an element we ought to consider in doing classical Cesarean section.

DR. MILES F. PORTER, Fort Wayne.—I recall a case which I desire to report in this connection; it was the only one in which I have ever had the good fortune or misfortune to do a Cesarean section. The woman was a multipara, who had given birth to three or four children prior to this time. Her attendant, who had been my assistant, kindly asked me to do the operation for him, and it was through his courtesy I saw the case. In his examination he found she had a large tumor situated in the pelvis under and behind the uterus. Labor had just begun. She was brought to the hospital; her abdomen was opened, and the tumor, which proved to be ovarian, was delivered after separating many adhesions. The question arose as to whether we should let the woman go on and deliver herself naturally, or whether we could deliver her with less trauma and less risk through the open belly. If we closed the abdomen, she would be in labor a number of hours, possibly, and this abdominal incision would be more or less damaged. On the other hand, we could deliver her promptly by Cesarean section. I told the physician that if the case were mine, I should deliver her. On being requested, I did so. I paid no attention to the insertion of the placenta. I made an incision over the anterior aspect of the uterus, introduced my hand, took hold of the child and delivered it. This was done in less than a minute from the time the incision was made, and I

was astonished at the little loss of blood. The woman had not lost as much blood, all told, as is lost in the average normal labor. The woman and child recovered.

The interesting point to me was as to whether I should close the abdomen and let the woman deliver herself; in other words, whether the child should be delivered through the uterus. All things considered, I would make the same decision if a similar case presented itself.

DR. ROLAND E. SKEEL, Cleveland.—I am very much interested in the paper of Dr. Schwarz. While I have delivered only three women by means of Cesarean section, I think the point made with regard to the use of the rubber ligature in these cases is not the correct one. Had it been used in one of my cases, the child would have been lost from cutting off of the circulation from the uterus. The use of the rubber ligature in classical Cesarean section is being abandoned. Furthermore, the transverse incision of the fundus, originally recommended so strongly in Germany, is going out of existence because in a contracted pelvis the patient may become pregnant again; and if she does, she will usually have difficulty in being delivered. With a transverse scar at the fundus she would almost certainly have rupture of the uterus, if allowed to go on, as the German authorities sometimes permit patients to do, for two or three days if there seems to be a possibility of spontaneous delivery. I look upon the rubber ligature as wholly unnecessary, and the hemorrhage is slight in these cases if the incision is made longitudinally but rapidly, the child delivered quickly, and sutures inserted. The insertion of the sutures in the classical Cesarean operation stops hemorrhage almost immediately, if the ligature has not been used and the contractile power of the uterus paralyzed thereby.

DR. SCHWARZ (closing the discussion).—Regarding the remarks of Dr. Vander Veer about the location of the incision, I will say that while in certain cases special incisions may seem preferable, after trying incisions crosswise over the fundus, or any other incision, either posteriorly or anteriorly, the majority of obstetricians have returned to the anterior incision, regardless of the location of the placenta.

It has been my good fortune to see a great many cases of Cesarean section. I was an assistant obstetrician at Heidelberg at a time when the classical Cesarean section was much neglected in favor of the Porro operation. In 1876, when Porro first published his operation, it started a triumphant march over the entire globe, and it looked as though it was going to supplant the classical Cesarean operation altogether, and it was not until we found a good way of suturing the uterus, until we took advantage of the general advancement in surgery, that the classical operation became again one which showed a fair prospect of success. My teacher, Professor Kehrer, of Heidelberg, was the first one to recommend a new mode of suturing. Unfortunately, he, at the same time, recommended a

new incision. He argued that we lose many cases on account of lochial flow, infecting the peritoneum through the uterine wound, and in examining every woman before she left the hospital we always found that about the fourteenth day, when they were discharged, the uterus was in the position of strong anteflexion. Kehrer argued that if the incision was made at the point of flexion, the natural anteflexion, which was almost universal, would aid in keeping the edges of the wound together. So he issued an order that in the first case of Cesarean section which should occur, the incision was to be made at the height of the inner os, and after delivery two layers of sutures were to be used. One was to be put through the muscular coat, without touching the decidua; the peritoneum was then to be dissected up, folded in, and tightly united by a special layer of sutures.

In March, 1881, he was called to the chair of obstetrics, at Heidelberg, and it was again my good fortune to go ahead of him and take charge of the institution. Heidelberg is famous for the number of cases of osteomalacious disease which come to its clinics, so that it was not long before we got a case for Cesarean section. I was assisting Kehrer at the time. We made a transverse incision, delivered the woman without much difficulty, and used that new suture on the first day of September, 1881. The woman made an uneventful recovery. We did the same operation on a patient in November of the same year, but in this case we found the child's head was larger; it was rather difficult to get the head through this small transverse incision; even if the incision reaches from one broad ligament to the other, delivery of the fetus is more or less difficult.

We got a third case in April, 1882. In this case the indication was not absolute, but relative. Kehrer naturally said, we are not going to perforate the living child and run some chance of losing the mother; we are going to do a Cesarean section. We did it, and again everything worked fairly well, except that it seemed difficult to get the child through the incision. The woman died, but not from any fault of the operation. She was doing well until the fifth day, when she was allowed to sit up, and shortly thereafter died from pulmonary embolism. Kehrer then wrote up his three cases of Cesarean section and sent the manuscript for publication to the Archives of Gynecology. Credé was then the editor of this journal; before Kehrer's paper was published an article by Saenger on suturing the uterus appeared in the *Archives*, in which he recommended the same method of suturing, that is, suturing through the muscular coat without taking in the decidua and using a special suture for the peritoneum. This new method of suturing was at once tested the world over, and it showed that the classical Cesarean section was now a safe one and it drove back the Porro operation to where it belonged, limiting its usefulness to a certain number of cases.

As I have pointed out, these are cases of septic infection and those that are complicated by certain forms of uterine tumor. As to the remarks of Dr. Porter, with regard to the complication of labor by a tumor, and whether or not it was justifiable in his case to do Cesarean section, and extirpate the tumor at the time, I would answer in this way: It depends altogether on the time at which he operated. If the woman was near term, it would hardly seem right.

DR. PORTER.—The woman was already in labor, one might say.

DR. SCHWARZ.—Ovarian tumors or other pelvic tumors complicating labor form a very characteristic picture. The first case of the kind I saw in the service at Heidelberg in January, 1882. In this case the tumor filled the pelvis, so that the cervix uteri was pushed high up behind the symphysis. The cervix was open sufficiently for examination. The woman was brought in about five o'clock in the morning; attempts at delivery had been made, first with the forceps and next at version. They got down one foot, but could not turn the child, and we put the patient in the knee-elbow position and tried to push the tumor up out of the way, if possible. Under antiseptic and aseptic precautions we can push the trocar into the tumor, and try to relieve the obstruction by drawing off the contents of the tumor, and this failing, there is nothing to do but to open the abdomen and deliver the woman first, and then remove the tumor afterwards. In this case we had tried both procedures, but by the time we pushed the trocar into the tumor and found there was no fluid escaping, the child was dead, and there was sufficient room to perform craniotomy. This operation was accordingly done, and we found that the tumor was not exactly what we thought. On the right side of the uterus, separated from it by a saddle-shaped depression, was a fluctuating tumor in the right broad ligament. We knew then that this woman had a cyst in the broad ligament. The patient died. A post-mortem examination was made, and on the table we used the trocar, but were unable to withdraw any fluid. The uterus and tumor were taken out and the tumor cut open, but no fluid came away. It was simply a case of myoma in which the tumor had become edematous, was highly vascular, and during pregnancy showed fluctuation.

I recall another case of tumor obstructing the pelvis that I had two years ago. The woman was near labor. We tried to repose the tumor and failed. We tried to tap it and failed likewise. Then we opened the abdomen, delivered the woman of a living child, first, and, examining down behind the uterus, found a colloid tumor of the ovary. The contents of this tumor were exactly like jelly. The tumor could not have been tapped, but it might have been removed by a vaginal section. We might have done this without subjecting the woman to the dangers of Cesarean section. I believe that the method pre-

ferred by most operators in cases of small tumors is to make a vaginal incision, and reach the tumor; if necessary, remove the contents of the tumor first, and remove the sac afterwards.

As regards the remarks of Dr. Skeel in regard to the use of the elastic ligature, he must have misunderstood what I said. I stated that the elastic ligature was placed loosely around the neck of the uterus. I put the elastic ligature loosely around the neck of the uterus because now and then we get a terrific hemorrhage, and we may have to remove the uterus some time to save the life of the patient, so I feel safer when the elastic ligature is applied loosely around the neck of the womb ready for instant use. I rarely ever make use of it, because compression of the broad ligaments, quick emptying of the uterus, and accurate suturing will almost always stop the hemorrhage completely.

APPENDICITIS AS A FACTOR IN THE DIAGNOSIS AND TREATMENT OF ABDOMINAL AND PELVIC TUMORS—ALSO COMPLICATING PREGNANCY.

BY

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I THINK I voice the sentiment of the majority of men engaged in our special work when I state that appendicitis when associated with pelvic or abdominal tumors, or the pregnant woman, has not been given the attention that the subject deserves. The writer has been convinced of this fact on many occasions, greatly to the misfortune of the patient. In discussing this subject, if we could draw the attention of the profession more forcibly to the early recognition of the cardinal signs of appendicitis in these cases, we would render a service to humanity. At the present time they appear to assume that when a patient grows suddenly ill, who is known to have a tumor in her pelvis or abdomen, there is something wrong with the tumor, and that a few days' quiet and medication will right the difficulty—when they will have the necessary operation performed.

All operators know that, in a large majority of instances where a patient is suffering from a pelvic or abdominal tumor, and becomes suddenly ill, the illness is caused by some pathological change in the tumor or torsion of its pedicle. They also know that in a small per cent. of these cases appendicitis may and does develop independent of the tumor, and if this is overlooked, it may cost the patient her life.

It is for this reason that I have written this short paper with the hope that we will have the characteristic free discussion of the subject by this association for which it is noted, and, thereby, bring the subject more prominently before the profession. Just how frequently appendicitis goes on to the formation of an abscess in a given number of patients suffering from tumor is a subject that would require a compilation of a large amount of clinical ma-

terial. I shall make no attempt to solve this question even approximately, but I am convinced that it is a condition that should always be kept in mind and given due consideration in dealing with every case of tumor complicated by an acute illness. If appendicitis were suspected as a cause of the acute illness in all of these patients, in the writer's judgment there would be little difficulty in making a correct diagnosis in almost all cases.

The clinical history and the characteristic pain does not differ in appendicitis associated with tumor from appendicitis where no tumor is present, and the writer is convinced that when these facts are emphasized, and the attention called to this subject, the profession will recognize appendicitis complicated with tumor as readily as it now does simple appendicitis.

In differentiating appendicitis when it is associated with the tumors in the abdomen, it has occurred to the writer that he could express himself more clearly if he would take each condition associated with an acute attack, and point out the leading symptoms from which a correct diagnosis might be made, especially in reference to cases progressing to the formation of an abscess. The writer has had to deal with acute attacks going on to suppuration associated with fibroid tumors of the uterus and large ovarian cysts, pyosalpinx, and the various other pelvic conditions, as well as that complicating pregnancy. In almost every instance, appendicitis was not diagnosed or even suspected until the patient was referred for operation.

Appendicitis going on to suppuration has been met with by the writer very much more frequently in large neglected fibroid tumors of the uterus, than in any other pathological condition in which it has occurred as a complication associated with abdominal or pelvic tumors. It ought not to be difficult to make a correct diagnosis of appendicitis when associated with fibroid tumors of the uterus, but, in many cases, there has been a history of long years of suffering of metrorrhagia and several attacks of pelvic peritonitis preceding the attack of appendicitis. Thus, the physician in charge very naturally attributed the attack of appendicitis to be one of the old attacks of recurrent peritonitis, from which the patient had so often suffered. Those of us who are familiar with the clinical history of these patients know that they are confined to their bed in varying periods from ten days to three or four weeks with these attacks, with a temperature varying from 100 to 102 for a day or two at the commencement of the illness. The tumors are fixed in the pelvis by dense and firm adhesions after

these repeated attacks of inflammation, and the patients are more or less invalids for weeks afterward. It has been this clinical history that has obscured the diagnosis of appendicitis in all of these cases. It is only necessary to carefully study and comprehend the clinical history of these patients to be better able to make a correct diagnosis.

In acute attacks of appendicitis, the onset of the attack is more abrupt, and the patient is more dangerously ill early in her illness than she is in peritonitis caused by her tumor alone. The attack is more sudden and all the symptoms are more aggravated. In peritonitis not associated with appendicitis, the pain is not localized as it is in appendicitis. When appendicitis is present, the peritonitis may become general, but, after the first twenty-four hours the pain always becomes localized in the region of the appendix. This is not true of peritonitis associated with a fibroid tumor. A patient suffering from peritonitis caused by a fibroid tumor usually has the reverse history. She goes to bed with the pain and temperature of 101°, with general pelvic discomfort, and it is one or two days before the whole abdomen becomes rigid and tender, and the pain never becomes localized as it does in appendicitis. It is so unusual for a patient with a fibroid tumor to have torsion of the tumor, and a sudden illness from this cause that it may be almost wholly ignored by the diagnostician, and again, the symptoms from torsion would not be those we have in acute appendicitis going on to suppuration. Still again, as a rule, on the third or fourth day of the attack of appendicitis, a well-defined mass can be made out in the region of the appendix, which did not exist before the attack. As the disease advances to the eighth, ninth or tenth day, this mass becomes greatly enlarged. The temperature chart and the general condition of the patient indicates the presence of pus.

In appendicitis, the patient has steadily grown worse after the third day, up to the tenth or twelfth day, while in peritonitis caused from the tumor, the patient's condition has generally gradually improved after the third day. In peritonitis, due to a tumor, we do not have the rigors or the sweats which are present in the cases of appendicitis going on to suppuration.

In fibroid tumors, associated with hematoma of the ovary, having repeated attacks of pelvic peritonitis, the ovary is always imprisoned in the pelvis below the tumor. In this condition the pain is localized at the seat of the hematoma, and the symptoms are very different from those of appendicitis. The acute attacks

in an infected hematoma, associated with a fibroid, are not so abrupt as in appendicitis. By careful bimanual examination in hematoma there is no difficulty in making out the presence of a localized swelling below the fibroid tumor, which is not so hard as that of the tumor, and always very sensitive on pressure. This may be located either on the right or the left side, and in those cases where it is on the left side, the elimination of appendicitis is at once made easy. In hematoma, the acute attack may last two or three weeks, and the temperature ranging from 100 to 101 or 102, or even higher at times, while in appendicitis going on to suppuration, we have the same clinical history of suppuration that is always present in cases that are not complicated by a tumor.

The differentiation of appendicitis complicating ovarian tumor is not difficult, excepting in one or two conditions which are likely to be confounded with appendicitis, and those only in the early part of the illness. In those cases where the patient has sudden torsion of the pedicle, the symptoms are frequently very abrupt. The patient becomes very ill within twelve or eighteen hours. The abdomen becomes rigid and very sensitive to pressure, and the patient complains of great pain. The pulse is accelerated, the patient lies with the limbs drawn up, and the general condition might be mistaken for appendicitis. The pain is not localized, nor does it become localized in this condition. The temperature does not rise, during the first two or three days of the illness, as high as it does in appendicitis, and very frequently the temperature in this condition is not above 99 or 100 degrees. The tumor rapidly increases in size and becomes firmer and less elastic than before. The patient may grow rapidly worse and her condition become very alarming in three or four days' time. Her pulse is rapid, and her general condition has the appearance of impending death, but the temperature remains practically normal. The writer has seen this condition diagnosed as appendicitis.

Another condition might be mistaken for appendicitis, and that is a rupture of the cyst. In some instances the symptoms are so pronounced that a diagnosis is easily made, especially if an injury has been received. The profound shock that frequently accompanies rupture, if it is present, aids in the diagnosis, and the changed condition in the outline of the tumor can nearly always be made out, and if so, aids very much in clearing up the diagnosis. But in other conditions we have rupture when the fluid is comparatively non-irritating and the symptoms not so well de-

fined. This may be confusing for a few days early in the history of the case, but a careful watch for the cardinal signs of appendicitis will put one on their guard and make the diagnosis plain.

We occasionally observe appendicitis develop in connection with long-standing suppuration of the tubes, and when it does occur the condition is very confusing but not impossible to differentiate correctly if one interprets the symptoms aright. In long-standing tubal diseases, we have a clinical history that we are all familiar with, a long period of invalidism with repeated attacks of pelvic inflammation and not infrequently general peritonitis. These attacks confine the patient to her bed for a week or ten days to four or five weeks. By bimanual examination, a well-defined induration can be outlined at one or both sides of the uterus. After the first twenty-four or thirty-six hours, the patient's condition is not so alarming. The temperature may fluctuate during her entire illness, but the symptoms are not so serious as those we have in acute appendicitis. She may have a tender point in the right half of the pelvis, but the lump extends farther down in the pelvis in this condition than it does in an appendicitis that goes on to suppuration. Again, in appendicitis, the pain becomes localized after the first twenty-four hours in the region of the appendix, and if the case goes on to suppuration, a well-defined mass can be outlined in this region within the first four days. The patient's condition is more alarming in appendicitis and continues so throughout the illness, than it is in pyosalpinx, excepting perhaps one or two days in the first part of the illness.

The diagnosis of appendicitis, associated with pregnancy, does not present any difficulties that are likely to be present in the non-pregnant woman, and I do not present the subject here with the idea of saying anything new, but simply to call attention to the fact that we may and do have appendicitis in pregnant women that may go on to the development of an appendicular abscess. This complication is one of the gravest that may befall a pregnant woman. It is not so much the diagnosis of appendicitis associated with pregnancy that concerns us, but the management of these patients is of the greatest importance. To formulate a working rule and have the profession united upon it, occurs to the writer as of the first importance. We may be divided in our opinion as to the advisability of an operation in the first attack of appendicitis in the nonpregnant patient, especially if we are called on the third or fourth day of the attack,

as we frequently are, but let us be united as to an immediate operation in the pregnant woman. There is much to be said for and against an operation in select cases, if the consultant is called on the third or fourth day, and it is due to the wise decision in many cases, that we avert a calamity, but when we come to deal with appendicitis associated with pregnancy, we have a graver condition to consider. If the patient was not pregnant, and the first attack a comparatively mild one, and the consultant called the third or fourth day, it might be wise in many cases to postpone an operation until the patient recovered, or, if the abscess is forming, until the abscess is better protected or walled off. But if the patient is pregnant and this supposed conservative measure is adopted, any time after that premature labor comes on, and there is a walled-off abscess, the barrier is broken down during labor, the general peritoneal cavity is infected, and the patient dies of septic peritonitis, two or three days after delivery.

This is not an imaginary picture, but one the writer has witnessed upon three different occasions within the past three months. He was called to operate them when they were past relief. He believes that all of these patients' lives could have been saved had the operation been made any time prior to the commencement of labor. They might have aborted afterwards, even their condition need not necessarily be so desperate and their chances of recovery would have been vastly better than the conservative method. The writer is convinced of the fact that every pregnant woman who is the subject of appendicitis, should be operated just as soon as the diagnosis is made, whether the attack is the first, second, or third attack. The consultant may see the patient two or three days after the attack commences, when her condition may be unpromising for an operation, nevertheless, the writer would urge an immediate operation, as the least dangerous for the patient, for their premature labor might come on, liberating the infection, and she might die from general peritonitis.

I have operated upon a number of patients in various stages of gestation during the acute attacks of appendicitis with very gratifying results. The general practitioner is not impressed with the great importance of an immediate operation in these cases, as he should be. If he can induce others to operate upon the pregnant woman who is a subject of appendicitis immediately after the diagnosis is made, he will feel that he has rendered a service to the profession. The treatment of appendicitis, complicated with

fibroid tumors, ovarian tumors and tubal disease, may be made more conservatively regarding immediate operation, if the consultant feels the necessity of doing so. In other words, if the diagnosis of appendicitis is not complete until the third or fourth day, in many of the cases it is probable that it would be good surgery not to operate upon the patient during the height of the acute attack, but to wait until it subsides, or to wait until an abscess is walled off. The danger of the barrier being broken down here does not pertain as in the pregnant woman. If we could not have an early operation which should in every instance include the radical one for removal of the tumor, if that be a fibroid or ovarian or pus tube, the case should be treated as if no tumor existed.

The writer has operated in every instance, making a radical operation for removing the tumor also, just as soon as the diagnosis was made, and he has never regretted doing so.

DISCUSSION.

DR. CHARLES A. L. REED, Cincinnati.—I wish to thank Dr. Hall for presenting this diagnostic study in such detail, as I feel there is a tendency to-day, particularly in our own department of the profession, to ignore a careful study of diagnostic methods and to rely too much possibly upon exploratory work to settle questions of diagnosis. On the other hand, I would not have the pendulum drift back to the other extreme, nor do I imply that we should study the symptoms and symptom-complex of these cases until the opportunity to do something for our patient has passed. I think a careful study of the symptomatology, in which appendicitis is a complication of pregnancy, is fraught with more significance in these particular instances than is the case with large uterine or ovarian tumors. There can be no question that a certain amount of mortality from these cases that have not been operated in the past has been attributable to the presence of appendiceal suppuration. My convictions on this point were accentuated by a case I was called to see two years ago, when I made a trip in the night, arriving at a farm house at two o'clock in the morning, finding symptoms of active appendicitis in the presence of a seven-and-a-half months' pregnancy. I did not hesitate a moment as to what preparations should be made, but operated upon the woman. She went to term; there was no interruption of labor.

I have had two other cases in which I have operated in the presence of pregnancy, more or less advanced, and in neither

instance was there any interference with the progress of gestation.

The study of pus tubes, of fibroids, as a complication of pregnancy has been gone into rather extensively by various authors in the literature, and I know that statistical evidence exists confirmatory of the position that pus tubes and fibroids are frequent complications of pregnancy, and we have learned to appreciate the fact that with a large number of cases of pus tubes we have a migratory infection involving adjacent regions, and by *a priori* reasoning we by force conclude that these cases do exist and are more frequent than we have been led to believe heretofore. I for one believe that we ought to study the symptoms much more carefully than we have done. We should weigh them very carefully, and particularly the symptoms presented in the excellent résumé that has been presented by the essayist.

DR. JOHN YOUNG BROWN, Saint Louis.—I simply rise to endorse everything that Dr. Hall has said in his paper. I think the indications for operation in appendicitis associated with pregnancy are equally as strong as those for appendicitis uncomplicated by pregnancy.

I had an interesting case some months ago of a woman, five months' pregnant, who came to the hospital suffering from a cyst of the left side which I removed without any interference with the pregnancy. It is usually my custom, when I open the abdomen in these cases, to remove the appendix; but the fact that the woman was pregnant prompted me to do as little manipulation as possible. I therefore left the appendix. Four weeks after this the patient was admitted with a fulminating appendicitis, and my assistant removed a perforated appendix. The woman is still pregnant, and the operation has not interfered in any way with the pregnancy. She made a nice convalescence from the operation.

This case emphasizes the importance of removing the appendix whenever the abdomen is opened. During the last year I have had four cases in which abdominal pelvic operations have been done and the appendix has been left, but where the appendix had to be removed by a secondary operation. I make it a rule now to take out the appendix whenever I open the abdomen unless the condition of the patient is such as not to warrant it.

DR. ORANGE G. PFAFF, Indianapolis.—I think perhaps the most practical and valuable point brought out by Dr. Hall was the suggestion that appendicitis not only cmoplicates pregnancy sometimes, but it is one of the complications which occasionally arise after delivery. A modest man is prone to assign all untoward symptoms which develop following confinement to some defect in his technique. There may be some persistent infection of the parturient canal from an abscess, and the like. A case recently brought to my notice illustrates this point very vividly. A physician who had handled the case with every

precaution found on the third or fourth day after confinement a rapid pulse, temperature running high, with pelvic pain referable to the right side. There was general distention of the abdomen. He recognized in a few days the presence of pus in the pelvis. He asked me to see the case with him. From his standpoint, it was a pelvic abscess due to some infection occurring during or after delivery. Both cul-de-sacs were free, but an abscess was located on the right side. We made an incision above McBurney's point and found an appendiceal abscess which had apparently developed from the traumatism incident to delivery. The patient gave a history of some old attacks of indigestion. This case was one of acute appendicitis which developed in connection with pregnancy and the traumatism of delivery.

DR. HALL (closing the discussion).—I do not know that I have anything to add except to thank the gentlemen who have taken part in the discussion for their remarks, and I feel well repaid for my labor if we can send out from this association the dictum that pregnant women should be operated on for appendicitis as soon as the diagnosis is made, and not wait in the hope that we will have a walled-off abscess; moreover, not to wait as we would in a non-pregnant woman, if the consultant is called late in the case, say three or four days, but resort to immediate operation. Even then we can promise the woman a better chance to get well than to wait. If the diseased appendix goes on to suppuration, she is more likely to abort, and if she does abort, the abscess is liberated and death results.

PREGNANCY ASSOCIATED WITH DIABETES.

BY

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A STUDY of the literature of pregnancy associated with diabetes is very interesting. The rarity of this condition, as shown by the few cases tabulated, gives but a meager working basis to draw conclusions that will be of much value.

In general practice a case of diabetes is looked upon as serious, in surgery a complication which often forbids even a simple operation, and in obstetrics (if we accept the views as expressed by that master—Mathews Duncan), we are dealing with a grave complication.

Cadges'[1] interesting report of the death of Dr. Hughes Bennett from exhaustion and sudden collapse the tenth day following an operation—lateral lithotomy for stone in the bladder—shows how rapidly a fatal termination may ensue when diabetes complicates a surgical operation.

Griesinger[2] calls attention to the fact that fatal issues may be very perplexing and misunderstood, if the diabetes is intermittent and happens to be absent at the time of the fatal intercurrent disease.

In McBride's paper[3] "on the significance of small quantities of sugar in the urine," he states that sugar has been found in connection with phthisis, pleurisy, cardiac disease, cerebral hemorrhage, certain psychoses and follows shock. If sweets are taken freely, especially upon an empty stomach, glycosuria is very apt to be produced. Hence, when an individual who did not present the ordinary symptoms of diabetes consulted him and he found sugar but not a high specific gravity, he expected, as a rule, a quick recovery under proper diet.

Blot[4] in 1856 first drew attention to the presence of sugar in small quantities in the urine of puerperal women, and says that it is a physiological occurrence. He also states that the quantity of sugar is in direct relation to the activity of the mammary glands.

Kiester[4] in 1857 confirms as to the presence of sugar, but affirms that if the lacteal secretions be hindered, the sugar increases instead of diminishes, whilst in those women who have much milk, and whose baby thrives, only traces of sugar are found in the urine.

Brücke[4] in 1858 says that sugar in the urine is physiological in nursing women, and in healthy individuals.

Ivanhoff[4] says that the glycosuria of pregnant and puerperal women is not constant, as Blot states, but nevertheless it is often met with.

De Sinety[4] in 1873 investigating the subject at length stated, that at the third or fourth day after delivery, he always found sugar in the urine.

Spiegelberg[4] mentions that the urine is frequently saccharine, that the sugar is in the form of lactose and as a rule contemporaneous with the establishment of lactation, the quantity being generally in proportion to the quantity of milk. He regards the condition as one of resorption diabetes.

Hempel,[4] 1874-1875, from an analysis of twelve cases concluded that sugar was present at some period during the puerperium, the greatest quantity noted being 1.6 per cent., and in these cases the breasts were enormously distended.

Kaltenbach,[4] while corroborating the works of previous writers, at the same time noted the relation of sugar in the urine to changes in the mammary glands.

Hofmeister[4] in 1878 showed that the sugar found in the urine of suckling women possessed all of the characters of milk sugar.

W. W. Jaggard[5] is authority for the statement that Tarnier rejected the notion of physiological resorption of sugar, and ascribes the glycosuria of pregnancy to hepatic changes.

From the above opinions as given by various investigators, it is essential that in grouping our cases we draw a distinct line between sugar in the urine due to lactose and a diabetic urine.

The appearance of sugar in the urine of pregnant women, only discovered in cases where a systematic examination of the urine is made before and after parturition, is of little importance if the patient is otherwise symptomless. Yet even if it is classified as a physiological fact and of little importance, it puts the competent observer on his guard, and any pregnant woman with sugar in her urine needs careful watching.

When, however, large quantities of urine are being passed, heavily loaded with sugar, and other symptoms of diabetes are

present, an entirely different case is before us for study, and we have what Duncan considered a grave condition.

Partridge[6] defines puerperal diabetes as diabetes developing during pregnancy, lasting through a considerable part or the whole of gestation, and disappearing to recur in succeeding pregnancies.

McCann and Turner[4] in their investigation of a series of 100 cases, found that lactose was present in every case, but the quantity naturally varies at different periods and in different individuals. Regarding the date of appearance of lactose, in 29 per cent. of cases, the sugar was present on the day of labor. The question as to whether mental anxiety at this time would cause a temporary glycosuria, is as yet unanswered.

The late appearance of sugar in the urine in some cases, even on the fourth or fifth day, may be explained by lactation being delayed.

The theory now accepted is that, the mammary glands being in a state of great activity on the third and fourth day of the puerperium, milk rapidly forms, the breasts become distended, milk sugar is absorbed into the blood owing to the excessive production or diminished outflow of milk, and this access of milk-sugar is excreted in the urine, and thus is formed the largest amount on the fourth or fifth day. The more distended the breasts, the lesser the outflow of milk, and hence a greater amount of sugar appears in the urine than if there was no impediment to its flow.

In summing up their results McCann and Turner[4] came to the following conclusions:

1. That the sugar present in the urine of women during lactation is milk sugar. Glucose may also be found.

2. That in the majority of cases, the largest amount occurs on the fourth or fifth day of the puerperium.

3. That sugar is present at some period in every case.

4. That the quantity depends on: (1) The condition of the breasts. (2) The quantity and quality of the milk. (3) The suckling of the child. Out of 100 cases, the average quantity found was .35 per cent., that is 1½ grains per ounce.

5. That when lactation is diminished or suppressed, the amount of sugar diminishes or disappears.

6. That when the production and exhaustion of the milk are equal, the amount of sugar is very small.

Willson[7] made a series of nearly 1,800 urinalyses in two years, and the majority of specimens examined were from pregnant women. Of this number only a small percentage—22 per cent.—

were entirely free from albumin and sugar, while in no case in which glucose was noted was albumin absent. When glucose appeared in the urine of a subject known to have previously not shown glycosuria, the occurrence, as a rule, took place at some time between the beginning and the end of the last month of pregnancy. Occasionally there was a trace of glucose throughout the pregnancy, this often disappearing completely after the birth of the child.

Payer[8] has shown that women are less tolerant of sugar during pregnancy than at other times, as he and McBride produced alimentary glycosuria in 80 per cent. of his patients by increasing the amount of sugar ingested.

While sugar in the urine is looked upon as a physiological factor, if diabetes supervenes, all agree that the case becomes serious, that it is dangerous to the woman and perplexing to the attending physician.

Symptoms which generally attract our attention to diabetes are three—thirst, polyuria and pruritus vulvæ. Such were the symptoms in the case I wish to report:

Mrs. G., age 35, 5 feet 7 inches in height, weight 150 pounds, strong and healthy in appearance, but excessively nervous. Mother of one child, a girl, now six years old and no trouble at the time of the birth. Became pregnant the second time in 1902, and consulted me, not because she was pregnant, but for the intense itching over the whole vulva. She was not able to sleep over an hour at a time, and was so nervous that she was constantly bordering upon hysteria. History of pregnancy for three months. Complained of frequent urination and the passage of a large amount each time. Drank water freely, as the thirst was intense.

The urine contained a considerable amount of sugar. There was no history of diabetes in the family. I attended her two sisters at the time of the birth of their children and no sugar was ever found in their urine. At the fourth month a miscarriage resulted, all distressing symptoms soon began to disappear and after one month no sugar was found in the urine and in another month she appeared perfectly well. In 1904 Mrs. G. became pregnant for the third time. About the third month the itching began, sugar appeared in the urine, and I expected she would miscarry again, but this time she carried the child to full term. The husband was somewhat alarmed at the large amount of water she was passing, saying that his wife would frequently fill a chamber at night. The itching became intense, sedatives were constantly applied, but gave only

temporary relief. Appetite somewhat abnormal. Numerous little boils were constantly forming on her back, shoulders and face. Diet-sugar and starches prohibited as far as possible. The question of bringing on premature labor was thought of, but not discussed with the patient or her husband. At last the day of labor arrived, and with the exception of the complicating rawness and edema of the vulva and vagina, the labor was normal in all respects. She made a rapid recovery and at the present time there is no trace of sugar in the urine. The baby has thrived and nursed the breast for nine months. Such is the concise history of a case of diabetes coming on with and terminating soon after labor.

I have collected the following cases from literature, and short histories are given of each.

1. Bennewitz's Case[9]—A young woman in three successive pregnancies, the fourth, fifth and sixth, was affected with diabetes, which each time completely ceased on delivery, but again returned when she became pregnant. The fifth child was born premature and born dead, weight 12 pounds. Menstruation occurred during the fifth pregnancy.

2. Mathews Duncan's Case[10]—Suspicion of temporary diabetes at the end of a former pregnancy. Death of fetus before the labor, Diabetes about the end of 8th month. Labor beginning at ninth month followed by collapse. An excess of liquor amnii complicated. Patient had very peculiar breathing and died on the third day after delivery. This was the fifth pregnancy. She had had two healthy children and two early miscarriages.

3. W. L. Reid's Case[10]—In the first pregnancy a macerated child. Diabetes early in the second pregnancy. Death of fetus in the sixth month. Premature labor a few days later. Excess of liquor amnii. Patient survived, but with persistent diabetes. Dr. Pavy, who saw the case, expressed the opinion that the diabetes had to do with the birth of the two dead fetuses.

4. Newman's Case[10]—First pregnancy and confinement normal. Diabetes persisted during the two succeeding pregnancies and till death. Second pregnancy and confinement natural. Third pregnancy, child born dead at sixth or seventh month. Death of mother on the third day after labor.

5. Newman's Case[10]—Diabetes in two pregnancies. Children born alive. Death of mother, two years after the birth of the last child, died after three days of coma.

6. Lecorche's Case[10]—Diabetes after a successful pregnancy

and delivery. Had one child six years ago and a very interesting feature was that the infant became diabetic. Her mother, a gouty woman, died albuminuric. Diabetes persisted during subsequent pregnancy and parturition.

7. John Williams's Case[10]—Mother and two sisters diabetic. Elder sister diabetic after confinement and recovered. Patient's first child born alive at term, diabetes found the next day. Second child born alive at term. Excess of liquor amnii and no sugar in it. Diabetes persists.

8. John Williams's Case[10]—Sixth child died during pregnancy. Born at the eighth month. Diabetes from early pregnancy. Death sudden, four months after delivery.

9. Aubrey Husband's Case[10]—Diabetes in the third pregnancy. Child born feeble, died in a few hours. Death of mother eight months after from diabetes. Liquor amnii was found to contain sugar.

10. Mathews Duncan's Case[10]—Diabetes began at quickening in the eleventh pregnancy. Child large and born dead. Diabetes disappeared. Relapse. Death eight months after delivery, comatose.

11. Davidson's Case[10]—Diabetes in the middle of fourth pregnancy. Father diabetic. Child alive, feeble, one month premature, lived 13 hours. Temporary disappearance of diabetes after labor, but it reappeared and four months afterward the patient died from diabetes.

12. Mathews Duncan's Case[10]—Sister died of diabetes. First pregnancy—boils, child died at eighth month, born at term. Second pregnancy—child born at term but decomposed. Third pregnancy—diabetes discovered at fifth month. Premature labor induced, child decomposed. Death the second day after delivery.

13. Frerich's Case[10]—Ninth pregnancy. Diabetes in eighth month. Death fifteen months later of phthisis and gangrene of the lungs. Tumor was also found in the medulla oblongata.

14. Seegan's Case[10]—Three pregnancies. Diabetes present. All ended in miscarriages about the middle of pregnancy and death followed the third miscarriage.

15. F. A. Packard's Case[11]—Patient had four normal pregnancies and then three miscarriages.

16. H. D. Fry's Case[12]—Patient had one normal pregnancy. Second pregnancy resulted in death of child, and mother died of exhaustion on the fifth day.

17. E. L. Partridge's Case[6]—Patient in the first pregnancy. Child born alive and mother's condition good.

18. G. Herman's Case[13]—Patient suffered from boils, burning pain on passing water and a terrible itching. Patient delivered of a dead decomposing child, and she died nineteen days afterwards.

19. Kleinwachter's Case[14]—Patient had four normal pregnancies and two miscarriages. Condition of last child normal. The diabetes persisted in patient.

20. Stengel's Case[14]—Was referred to him by Hirst for suggestions as to dietetic and medicinal treatment. Patient's general physical condition improved under treatment, and the pruritus vulvæ speedily subsided. Labor—condition of mother and child good.

21. Whitridge Williams's Case[8]—Presented marked glycosuria, but went on to term. The glycosuria disappeared after labor.

22. Winckel's Case[10]—Diabetes observed in second confinement. Child born alive.

Frequency.—Diabetes is far more common in men than in women. Duncan when he wrote upon this subject 23 years ago said, that the rarity is attested not only by its having no historical place in literature, but by the actual experience of accoucheurs and hospitals. That it seldom occurs in women during pregnancy, and among his own 386 observations of diabetes, 282 were in the male sex and 104 in the female. Of these 104 of the female sex only one was ill during pregnancy and in the eighth month. The age that diabetes affects women as a rule is late in life, and Kleinwächer's statistics show the commonest age to be between 40 and 50 years. Duncan says that cases come on during pregnancy, after delivery and during the suckling period, but are not sufficiently detailed to justify any deductions from them. They merely establish a possibility of the supervention of diabetes in these states. Of diabetes in pregnancy and parturition our knowledge is scanty in the extreme and Senator notes it is a matter for wonder even that pregnancy has been known to occur in diabetic women.

Results.—A woman who is diabetic rarely becomes pregnant, but if she does she is generally so debilitated that she will not carry the child to term. Diabetes occurring in women of the child-bearing age results in a suppression of menstruation, and even atrophy of the uterus has been known to follow. Such being the case, it is rather fortunate that only a small number of wo-

men become pregnant, as diabetes itself is such a serious disease to handle when uncomplicated.

Duncan's tabulated cases show the following results:

1. That diabetes may come on during pregnancy.

2. Diabetes may occur only during pregnancy, being absent at other times.

3. Diabetes may cease with the termination of pregnancy.

4. Diabetes may come on soon after parturition.

5. Diabetes may not return in a pregnancy occurring after its cure.

6. Pregnancy may occur during diabetes.

7. Pregnancy and parturition may be unaffected in its healthy progress by diabetes.

8. Pregnancy is very liable to be interrupted in its course and probably always by death of fetus.

In grouping the 22 cases that I collected and the one reported by myself, making in all 23 cases, I find the following interesting facts:

Out of this number there were 12 recoveries and 11 deaths, giving a maternal mortality of 48 per cent. This includes all cases that died as the result of persisting diabetes. The fetal mortality is very high. I am not able to give the exact percentage as many of the cases reported are not complete, and for the same reason I cannot state the number of miscarriages that occurred.

There were 19 multiparæ and 4 primiparæ.

Of the 4 primiparæ, one died and three recovered.

Of the 19 multiparæ, ten died and nine recovered.

In one case reported, menstruation persisted throughout the pregnancy.

In two cases, there was an excess of liquor amnii and one woman died, the other recovered.

In one case sugar was found in the liquor amnii, this woman dying eight months after the birth of child, of diabetes.

In one case sugar was found in the urine of the infant. The mother of this child lived and so did the infant.

As these cases are so uncommon no methods of surgical treatment are advised, other than the bringing on of premature labor, if the case in our judgment justifies such a procedure.

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DISCUSSION.

DR. SAMUEL W. BANDLER, New York.—I would like to express my appreciation of the scientific and concise manner in which this subject has been presented to us in the excellent paper read.

I would like to call attention to one or two points. Since we do not know the etiology of diabetes, this question, from a gynecological standpoint, is bound to be obscure. The idea has been advanced that the muscles, perhaps, in some way, have something to do with the finding of sugar in the urine. In women who have uterine fibroids sugar is found in the urine proportionately more frequently than in those who have no fibroids, which may explain many of the cases in whom a hysterectomy is done and who die from pulmonary embolism. Thrombi occur much more readily in these cases than in others. If we were to examine these patients more frequently, undoubtedly we would find that sugar is an accompanying factor.

Another point is the association of diabetes with pregnancy or abortion in which, after abortion or pregnancy, diabetes disappears. What is the etiology? Do we know anything about renal irritation in these cases? This brings up the question of the so-called toxemia of pregnancy about which, too, we know very little of a positive nature.

In the toxemia of pregnancy we have yellow atrophy or other lesions of the liver; we find lesions of the pancreas, of the kidney, and in every structure of the body. We do not positively know what the causal factor of that toxemia is, or where the poison comes from. It has been said, and I believe it, that the irritating substance or poison comes from the placenta; that it irritates the nervous system; it causes the so-called eclamptic seizures, and produces lesions in the liver which can be recognized by the microscope. We know, thus,

that from the placenta comes a substance which produces irritations in organs that are the supposed source of diabetes, or of sugar excretion. If a liver condition be the cause of the diabetes, this poisonous placental substance may be one that irritates the liver in the diabetes of pregnancy. If it is the pancreas, then the substance may irritate the pancreas in these cases. Therefore, the point of interest to me is that we should begin to think of these cases mentioned by Dr. Tate as perhaps coming under the head of the toxemias of pregnancy in their manifestations, a subject to which too little attention has been really paid.

MYOMECTOMY.

BY

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THE purpose of this paper is to call renewed attention to an operation too rarely undertaken.

Since the time when McDowell first pointed the way, and Semmelweiss made it possible, a great host of women, relieved of their infirmities, have been restored to health and happiness, and have found life worth the living. But the shadow of evil has followed this good, and many to whom benefaction was perhaps intended have remained maimed and crippled, derelicts upon the sea of life, with consolation offered only by the grave. The successful results following hysterectomy for fibroids has led to a wholesale onslaught in all cases of this condition, and a ruthless sacrifice of the uterus and its appendages is constantly taking place.

As experience and a knowledge of intraabdominal conditions increase, the desirability of more conservative measures is impressed upon the surgeon, and the saving rather than the destruction of organs and parts becomes his constant effort and rule of practice. The trend of surgery is ever toward conservatism, and unnecessary and unwarrantable procedures should evoke the strongest condemnation from every one who has the good of his craft at heart.

In 1874, Spiegelberg[1] demonstrated the possibility of enucleating fibroid tumors from the uterine wall with closure of the wound by suture. He was later followed by Billroth, Pean and others, notably by A. Martin, of Berlin,[2] who showed that myomectomy could be accomplished without increasing the dangers of operation to the patient, while it possessed advantages over hysterectomy in conserving the uterus, putting its tissues in the way of renewed health, restoring functional activity to the organ, and rendering subsequent pregnancy possible.

But the failures which followed the earlier operations of this

nature unjustly prejudiced many against its performance, a bias which still obtains among a certain few. A careful scrutiny of reported cases will, however, show that, in many instances, the objections to the operation are ill founded, poorly selected cases, faulty technique or failure in some detail of asepsis being responsible for the unfavorable results.

To determine the worth of any operation it is necessary not only to be thoroughly familiar with its technique, but to compare the immediate and end-results with those which are known to be obtained from other operations of a cognate nature, or which are directed to the relief of the same condition. Enlarged experience has proved that myomectomy, under proper restrictions, has accomplished all that is effected by hysterectomy, but without the loss of organ or function or the precipitation of those nervous and mental phenomena which not infrequently render life a living death. In considering the conservative operation for uterine fibroids, many of the factors making for success or failure are often left untouched; generally only the technique of the operation is discussed. As a result, the student of methods is uninstructed as to the conditions governing the proper application of the procedure.

Whether myomectomy is preferable to hysterectomy in a given case depends largely on the age and physical condition of the patient, the involvement of the uterus, and the size and distribution of the tumors.

Other conditions being favorable, no woman during the child-bearing age should be deprived of her uterus, provided sufficient muscular tissue remains after enucleation of the tumors to insure restoration of the organ to its nulliparous size. The ability to decide this question, in many instances, can be a matter only of experience and technical training, but it is safe to say that the more skillful the operator the less frequently will he find it necessary to resort to total ablation. My own statistics show about thirty-two per cent. of myomectomies. These were undertaken either as the principal or as a supplementary operation.

For obvious reasons women suffering from grave somatic or thoracic disease, or other abdominal disorder, are unfit subjects for myomectomy. In this connection too much stress cannot be laid upon the importance of recognizing the effects of hemorrhage on the general economy. The changes in the blood, heart, liver, kidneys and other abdominal vis-

cera induced by prolonged menorrhagia[8] may render any operative intervention of extreme seriousness—in the instance of myomectomy more surely fatal from the continuance of blood loss, which may be expected in many cases during the reestablishment of normal menstruation. Pelvic inflammation, especially if associated with pus formation, is also a strong contraindication for the operation. When the ovaries or tubes of both sides are damaged beyond repair, hysterectomy should always be done, but the presence of a unilateral ovarian cyst, or a small pus tube when the appendages of the opposite side are in a healthy condition, or when the partly diseased tubes and ovaries permit of resection—these complications do not militate against a successful outcome from enucleation. A case of the last description illustrates the possibilities of conservative work.

A young woman, aged 31, married five years, sterile but very desirous of children, consulted me regarding fibroids of the uterus, from which she was suffering. The condition had been discovered two years before, and she had since been subjected to various treatments, including electricity, but with little or no relief. From the beginning menorrhagia had been an increasing symptom, and of late there had been several slight intermenstrual discharges of blood. The uterus was found to be enlarged to about the size of a four-months' pregnancy and was irregular in outline from a number of fibroids projecting from its surface. It was freely movable. The cavity ran forward and measured 4½ inches.

As she was anxious that something radical should be accomplished for the relief of her condition, operation was undertaken with the distinct understanding that whatever was demanded should be done, but that if possible the organs would be spared.

At the operation the uterine canal was first thoroughly dilated and curetted. The abdomen was then opened and seventeen fibroids varying in size from a small orange to a white bean and for the most part interstitial, were removed by enucleation. The beds of the larger tumors were united by deep sutures of catgut and the peritoneum over each incision was closed by the same material. The distal third of each Fallopian tube was covered by fine adhesions, dilated, the end clubbed and the abdominal opening closed. This part of the tube was resected and the remaining portion of each side attached to its respective ovary. The right ovary was of normal size and

apparently healthy. The left ovary, which was buried in adhesions, was enucleated and its outer half found to be occupied by a hematoma the size of a large cherry. This was cut away and the wound in the ovary closed by catgut.

The patient made a good recovery and regular menstruation was resumed at the proper time. A recent report states that she is in "glorious health."

Regarding the involvement of the uterus, myomectomy is, of course, not to be considered in those cases in which the growth occupies the whole or major portion of the organ, or where from the size of the tumor the incorporated uterine canal has become greatly elongated. Exceptions to the latter may be found in pedunculated fibroids, either subserous or submucous, in which the uterine cavity is often excessively distended or stretched out. It may be said that in general interstitial fibroids of a size exceeding a child's head do not offer favorable indications for the operation. On the other hand, myomectomy is well suited to single, small and medium size tumors situated in any portion of the uterus, and in multiple isolated growths which are separated by a fair amount of muscular tissue.

As to the number of such tumors which may be extirpated with safety, there is a difference of opinion. In my own experience the physical condition of the patient and the amount of involved muscular tissue present in the uterus are the determining factors. These being favorable, almost any number of fibroids may be enucleated. In the case of an unmarried woman 34 years of age I removed by abdominal section thirty such growths from different portions of the uterus, the patient making a rapid recovery and remaining well since.

The effect of the removal of the tumors on the uterine musculature is not as yet quite plain. Laboratory investigation shows that regeneration of smooth muscular tissue after injury may take place to a limited extent, but that healing results largely through the formation of fibrous tissue.[4] Clinically it would appear that either the amount of fibrous tissue deposited after myomectomy must be small or that some subsequent change takes place whereby it is largely removed, for its presence does not appear to interfere in any way with the functions of the organ.

Following myomectomy the re-establishment of menstruation, especially if a number of tumors have been removed, is usually associated with increased blood loss, sometimes amounting to

hemorrhage. The flow, however, gradually becomes less with each succeeding month, until the normal is attained. During this rehabilitation period the patient should be kept in bed during the menstrual week, and such remedies given as tend to check the local discharge.

One of the most pertinent objections urged against myomectomy is the possibility of the development of new growths which have been overlooked and left behind at the primary operation. This occurred in one of my own cases in which I removed a large pedunculated fibroid together with a submucous tumor the size of a pullet's egg by the vaginal route. The subsequent appearance of other tumors rendered a panhysterectomy necessary four years later. By the abdominal route the overlooking of isolated tumors is less likely to occur, for, as the fibroids are enucleated by pinching the tissues between the fingers, any growth the size of a pin's head can be readily detected. But, granting that subsequent development may occasionally occur, is the conservative operation not worth while, since the woman remains in possession of her pelvic organs perhaps for years, and possibly until near or after the establishment of the menopause, when total ablation of the affected parts becomes a matter of less somatic and psychic importance?

According to the statistics of G. Winter[5] pregnancy following myomectomy is more likely to take place in women under forty years of age, while the size and situation of the tumor plays an important rôle not only as regards conception but also in the matter of carrying the products to term. Following the extirpation of fibroids larger than a child's head, pregnancy is a rare event.

Of Winter's collected cases, in the submucous variety of fibroids 22 per cent. conceived; in the pedunculated subserous 20 per cent.; and in the subserous-interstitial 20 per cent. From the fact that abortion is more likely to take place after the vaginal extirpation of fibroids, on account of the extensive injury to the uterine lining, the abdominal route is to be preferred for their removal. In none of Winter's cases was the working capacity of the uterus interfered with—a sufficient answer to the objection of Döderlein and Krönig, founded on a single experience,[6] that rupture of the organ may occur during labor from the sudden giving away of the weakened wall. Surely no one would think of giving up the Cesarean operation

because this accident has occasionally occurred from a similar cause.

In regard to the technique of myomectomy little need be said. As already stated, abdominal section offers the best and safest way of getting at the tumors and of controlling hemorrhage and preventing sepsis. Drainage following operation is, in my experience, of the greatest importance. To this end thorough dilatation of the cervix and uterine canal should always precede the attack from above, and unless the operator can be positively assured that oozing from the cut surfaces will not take place, a drain reaching to the bottom of the pelvis should be placed in the lower angle of the parietal wound. The advice of Leopold to remove as many tumors as possible through a single uterine incision is always to be borne in mind. The edges of large beds in which the tumors have rested should be trimmed and their sides brought in close apposition by deep and superficial sutures, preferably of catgut, and the peritoneal incision carefully united by sutures of the same material.

In closing I submit as the argument of this paper:

(*a*) The ruthless sacrifice of the uterus in many cases of single and multiple fibroids of that organ is greatly to be deprecated, and the influence of good surgery should be toward the discontinuance of such unnecessary measures.

(*b*) Myomectomy affords relief in a large percentage of these cases and has the advantage over hysterectomy in conserving the uterus, putting its tissues in the way of renewed health, and restoring functional activity.

(*c*) Under modern methods, in skillful hands, the dangers from this operation—hemorrhage and sepsis—so greatly feared by the older operators, have been practically removed, and in suitable cases almost any number of tumors wherever situated may be enucleated with satisfactory results.

(*d*) In determining on myomectomy as the operation of choice, the age and physical condition of the patient, the arrangement and distribution of the tumors, and the amount of uterine musculature present must be given chief consideration.

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ABDOMINAL PREGNANCY, PERSISTING BEYOND THE NORMAL PERIOD OF GESTATION, WITH REPORT OF CASES.

BY

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It is my object to present the subject of extrauterine pregnancy with abdominal gestation extending beyond term by giving the history of three cases in my own practice, and a résumé of some recent cases from the literature of the subject.

Case I. *Extrauterine pregnancy, with extraperitoneal development of gestation; fifteen months' duration; operation by marsupialization; recovery.*—Bertha M., age 30, married, was admitted to the Cincinnati Hospital February 18, 1900, complaining of uterine hemorrhage. Family history negative. Menstruation began at 13 and was normal until two years after marriage, eight years ago. It then became painful and was slightly irregular. She had never conceived, although she would sometimes miss her flow for three or four months, after which it would recur without hemorrhage or other extraordinary symptom.

Frevious History.—She had menstruated early in January, 1899. In May, 1900, after carrying a bucket of water upstairs, she was seized with great pain in the abdomen and fainted. She was carried to another hospital, where she remained under treatment for three weeks for pelvic peritonitis. She felt very well after her dismissal at that time, but noticed a lump in the lower part of the abdomen. This continued to increase in size until November 7, 1899, when, having no other sign of pregnancy, and being in doubt about her condition, she came to the Cincinnati Hospital for diagnosis. As the fetal heart could be readily heard, and as there were no extraordinary symptoms present, she was informed that she was pregnant, and was placed on the waiting list for delivery. She, how-

ever, insisted upon going home, and accordingly passed from observation.

Present Condition.—When she returned, on February 18, 1900, patient stated that she had had several slight attacks of hemorrhage from the uterus, one of which had brought her back to the institution. She said, furthermore, that the abdominal enlargement had been receding, which, from inspection, seemed to be true. No fetal sound could be heard. The tumor at this time was lying rather to the right side of the abdomen, with a marked protrusion just below the level of the umbilicus. It was narrow and irregular, extending upward to the left, the top of the mass being felt half way between the umbilicus and the ensiform. Although tense, it seemed slightly fluctuating. Definite outlines could not be made out readily, although the mass seemed more nodular near the base.

Temperature, 102.5 degrees F.; pulse, 100 and feeble; blood: reds, 3,500,000, whites, 7,500; hemoglobin, 75 per cent.

Operation, February 20, 1900.—The incision from the umbilicus to the symphysis was carried down to the sac, from which a large quantity of chocolate-colored fluid was taken. The fetus was then revealed, with its head lying in the right iliac fossa, and with its surface presenting extensive sphacelated areas. On removal, it was found to weigh eight and three-quarter pounds. The cranial bones had collapsed and the costosternal articulations had disintegrated. The placenta, which was implanted on the visceral side of the sac, was brown, destitute of any appearance of bloodvessels and looked like a deposit of desiccated and subsequently macerated bundles of connective tissue. An attempt was made to separate this structure from the sac, care being taken not to open the peritoneal cavity, but the effort was only partially successful, as hemorrhagic areas were soon encountered, after which the remnant of placenta was left *in situ*. A few approximation sutures were inserted in either angle of the incision, the wound being left open for a distance of about 3½ inches. Through this opening the cavity was packed with sterilized gauze, and the patient returned to bed in good condition.

After-treatment.—Pulse and temperature speedily became normal. The bowels moved on the second day. The cavity was irrigated twice daily, at which time such fragments of the placenta as could be cut away were removed. To facilitate the more rapid disintegration of the placental structure, the

gauze packing was saturated with a strong solution of sodium bicarbonate. Later, however, that is at the end of a few days, this was discontinued and, instead, a thin paste, containing the yeast ferment, was inserted, with the result that every remaining fragment of dead placental tissue was literally digested away in the course of sixty hours. From this time on the discharge, which had been copious and very fetid, became scant and odorless. On March 20, the cavity would scarcely admit the tip of the little finger; on the 29th, the record indicates that it had closed. On April 6, the patient was permitted to leave her bed.

CASE II. *Extrauterine pregnancy; extraperitoneal development of gestation; eleven months' duration; operation, recovery.*—Lucy W., age 30, married, was admitted to the Cincinnati Hospital June 24, 1903, complaining of being in the family way with failure to feel life during the last three months. Her family and personal history were without significance. Menstruation which began at 15 had always been regular and painless, generally lasting three days, the last having been in November, 1902. Has had four children, all living and well; labors normal; no other conceptions. Her general health has always been good.

Previous History.—Fetal movements were first felt the last of February or the first of March, 1903, the greatest activity having been experienced in the right upper quadrant of the abdomen. These movements were last felt about the 15th of the ensuing April. The abdomen, however, continued to enlarge until early in May, since which time it had diminished in size. She has had no vaginal discharge. A week before admission she had chills followed by fever and copious sweats, recurring at irregular intervals and for which she had been treated on the outside for malaria. This was associated with loss of appetite and occasional vomiting. Her bowels became loose, stools being very offensive. Her face was dull and lifeless, while her scleræ were yellowish. The tumor extended from near the ensiform to the pubes and elicited resonance above, fluctuation near the umbilicus with dullness lower down. The cervix was short, softened, and the seat of bluish congestion The temperature varied from 99 degrees to 104 degrees F.; the pulse from 70 to 124 and the respiration from 22 to 28 during the week that the patient was held under observation with the hope of improving the general condition. This was accomplished

to a certain degree, although the pulse at the time of the operation was 120 and the temperature 102.4 degrees F.

Operation, July 1, 1903.—An incision was made from the umbilicus to the pubes, the peritoneum being opened to that extent. The fetal sac was found to occupy the abdominal cavity, having developed back of the peritoneum and to the right of the uterus.

As a consequence the uterus, with both round ligaments and both Fallopian tubes visible, was presenting in front and to the left of the mass. This, after duly protecting the peritoneal cavity with gauze packs, was opened, liberating a large quantity of dirty, cloudy, brownish yellow fluid. The child, apparently fully developed, but with its epidermis macerated and, in certain areas, exfoliated, was seized and removed. The site of the placental attachment was extensive, occupying the posterior abdominopelvic wall to a point nearly two inches above the lumbosacral articulation and occupying the posterior part of the sac wall proper. The attachment to the wall of the sac could be separated easily and without hemorrhage, but an attempt to pull it off the abdominopelvic wall was followed by free bleeding. The sac. placenta and all, was, therefore, drawn through the abdominal incision, and so much of it as was free was excised on a level with the integument. The edge of the remnant of the sac was then stitched to the edge of the skin, to the extent of about four inches on both sides of the lower end of the incision, which was thereupon closed from this point to its upper angle, thus completely isolating the fetal from the peritoneal cavity. An opening was now made into the vault of the vagina, and through-and-through drainage established by the use of gauze. The patient was then put to bed with pulse at 136 and of poor tension, and temperature 99.2 degrees F. Strychnia gr. 1-30 was given.

After-treatment.—The patient reacted well under an intravenous infusion with a hypodermatic injection of strychnia. Gauze packing was changed daily, the cavity being irrigated with normal salt solution. On the fourth day a T-shaped rubber drainage tube was passed through cavity into the vagina and left *in situ*. The gauze packings were saturated with enzymol and changed every six hours. The discharge with offensive odor still persisting, the yeast ferment was placed in the cavity. Under its influence the débris was thrown off with great rapidity, all odor ceased after forty-eight hours, and on the third day of

its use a healthy granulating surface appeared on the bottom of the cavity. From this time on the patient's convalescence was uneventful and she was discharged at the end of the fifth week. As the child was apparently at full term, and as it had been dead for over two months, the period of gestation is estimated at eleven months plus.

CASE III.—*Abdominal pregnancy of four years and nine months' standing, complicated with fibroid of the uterus; extraperitoneal development of gestation; operation; recovery.*

Mrs. K., of Dayton, O., aged 35, married sixteen years, was never pregnant until January, 1900. A month later she had an attack of left pelvic pain, followed by swelling of the left leg, from which she recovered after several weeks of illness. Fetal movements were diagnosticated in June following, and continued until September. They then ceased, but their cessation was marked by an attack of vomiting, and later, in October, when, having attained the size and shape of a woman at full term, she was seized with a slight flow and regular labor pains, which lasted three days. The pain then died away without having effected parturition. She at once improved in appetite and strength, and the whole tumor began to decrease in size. Drs. W. J. and D. B. Conklin, who were then called in, diagnosticated abdominal pregnancy complicated with fibroids and advised delay before operating, the object being to secure at least partial absorption of the placenta before opening the sac. This advice was accepted and the patient, when menstruation was resumed, in December, 1901, did very well until March, 1903. Her menstruation then ceased, and she began to have severe pain in the pregnant site, the dimensions of which had materially diminished. Dr. Conklin's advice to submit to operation was not acted upon, in the hope of forming innocuous lithopedian. In June, 1904, the patient manifested a low grade of septic symptoms, which continued until October 28, when I saw her, and when she reluctantly submitted to the operation of marsupialization. The sac was opened three inches to the left of the median line, and the fetal remnants were removed. They were subsequently shown to the Cincinnati Academy of Medicine, and consisted of the skull bones, the ribs, the vertebræ and the long bones, all skin, flesh and epiphyses having disappeared. There was not a remnant of the placenta left, the partial absorption of which I have observed in two previous cases—a

fact which confirmed the wisdom of the early delay advised by her medical attendant. Two large fibrous nodules of the uterus could be felt through the wall of the sac, the peritoneal wall of which was not opened. The cavity was packed with antiseptic gauze and the patient returned to bed. Two days later the septum between the cavity and the sigmoid gave way, with a resulting fecal fistula. This was permitted to discharge quite freely until the cavity was considerably contracted, when further fecal discharge was controlled by a device suggested and successfully used by Dr. Dandridge, consisting of a layer of rubber dam, on which a rubber sponge is placed and held in position by elastic straps. It now seems that, with the exception of the fibroids, which are not active, the patient, whose condition is excellent, will require no further operation.

Additional Cases.—Without any attempt at a systematic research, I have taken from recent literature first at hand, brief records of additional cases which seem to be illustrative of other phases of this general subject, as follows:

CASE IV.—*Extrauterine pregnancy of nearly fourteen years' standing: intraperitoneal development of gestation; operation; recovery.*

Murphy (J. B.) reports (*Annals of Surgery*, Vol. XXXIX, p. 465) a case in which the fetus had evidently escaped through a rent in the tube directly into the peritoneal cavity. The tube had healed, the fetus surviving until the seventh month, by placental connections established within the peritoneal cavity. The operation was done thirteen years later, when he found "no adhesions of the intestines." Adhesions were present between omentum and lower extremities of the fetus to a little above the knees. These were organic and the feet were partially absorbed. The adhesions were ligated and cut off. There was no evidence of a gestation sac, except the thin parchment membrane, chiefly comprising the fetus. This was so firm as to hold the parts in close compression, thin and firm as a drawn hood; the arms were folded on the chest, the head flexed on the right shoulder, and the chin adherent to the shoulder. The fingers were perfectly preserved and mummified. No evidence of any connection between the fetus and any of the pelvic organs. The patient recovered.

CASE V.—*Extrauterine gestation of nearly eight years' standing; intraperitoneal development of fetus; operation: death.*

E. Hurry Fenwick reports (*British Medical Journal*, Dec. 31, 1904) the case of a patient, aged forty-five, who entered the London Hospital, presenting a large abdominal tumor, associated with fecal urine, pneumaturia, hectic temperature of long duration, great emaciation and cachexia. She had considered herself pregnant eight years before, and had arranged for her confinement when, suddenly, the symptoms of pregnancy began to subside. The abdominal swelling subsided only slightly, and during the seven succeeding years she had a lump in her right side which remained after her belly had otherwise gone down. Three months before admission she had received a blow on this lump, which was followed by pain and sickness, which finally brought her to the hospital. Incision through the abdominal wall revealed a large cavity distended with pus, feces, gas and detritis. When these were washed away the macerated remnants of a fetus were found in the bottom of the sac and removed. "I then," says Dr. Fenwick, "tried to open the peritoneal cavity at the sides, in order to dissect out the wall of the sac in which the fetus had been, but the bowels were not only adherent to it but so greatly softened that I desisted. Finally I was forced to pack the big cavity of the sac. The patient rallied, but died in a few hours."

CASE VI.—*Extrauterine, or, more properly, ectopic pregnancy of twelve months' duration; cornual development of gestation; operation; recovery.*

T. Smith and H. Williamson (*Jour. of Obst. and Gyn. of the British Empire*, January, 1903) report a case of ectopic gestation advancing to full term without rupture. She had advanced to full term and labor pains set in; fetal heart sounds could be heard and movements felt, but the position of the fetus was not made out. The cervix was long and firm, and the external os small. The pains were slight and continued so for a week, when fetal sounds could no longer be heard, and the movements ceased. A brown watery discharge from the vagina began, and the abdomen diminished. An operation was done three months later, when a fetal sac was revealed, containing a well-developed child. The pregnancy was regarded as cornual rather than tubal, on the following grounds: (1) The round and ovarian ligaments were attached to the base of the tumor; (2) the abdominal ostium of the tube was patulous; (3) the sac wall was highly developed, containing

both fibrous and muscle tissue; (4) the fact that the sac had ruptured at no time in the history of the case. Recovery.

CASE VII.—*Extrauterine gestation of fifteen months' duration; locus of development, relative to the peritoneum undetermined; operation by cystotomy and drainage; recovery.*

Galeazzi (*Gion dell R. Accad. di Med. Torino*, January, 1903) records the case of a woman, aet. 39, who first menstruated at 15, married at 22 and had a child a year later. Menstruation reappeared fourteen months later and continued regular. At 31 menstruation ceased for three months accompanied by all the signs of pregnancy. At the end of three months she was seized with sudden and severe pain in the lower abdomen, which lasted for 12 hours and was followed by metrorrhagia for eight days. A certain amount of indefinite pain remained in the suprapubic region until a year later bladder symptoms set in, necessitating a suprapubic cystotomy, when a considerable number of fetal remains were removed from a cavity that communicated directly with the bladder. Some twenty or more bones were recognized corresponding in size with those of a three-months' fetus. The after-history was satisfactory. The author has collected the histories of 20 similar cases.

CASES VIII, IX, X.—*Extrauterine gestation of duration beyond period of normal pregnancy; intraperitoneal development of gestation; operation; results not given.*

Amann (*L'Obstetrique*, July, 1903) recently exhibited three specimens of fetal remains taken from old and recent extrauterine pregnancies. (1) The first was a full-term extrauterine fetus which had remained in the abdominal cavity for five years. It was rolled into a ball and showed several malformations. Its cyst wall was calcified, and its tissues were in parts full of lime salts—conditions incident to a forming lithopedion. (2) The second was a five-months' fetus, with no cyst walls or membranes, that had been nine years in the abdominal cavity, the fetus being completely calcified. (3) The third was a fetus nearly at term which was malformed, and which had been removed from an extreme hydramnion. The fetus had died only two months previously, yet its membranes were already impregnated with deposits of lime salts. The head and extremities were adherent to the membranes through which the hair of the fetal scalp had grown. The corresponding Fallopian tube showed nodular inflammation of the isthmus.

In addition to the foregoing, I find that Deletrez reported to the French Congress of Gynecology and Obstetrics for last year a case of extrauterine pregnancy of twelve months standing, and that Saint-Jacques and Marien recently reported (*Union Med. du Canada*) an extrauterine pregnancy of the chronic variety with lithopedion. A case operated upon by Gouberer and reported by Thomsen (*Jour. d'Obstet. et de Gynecol. Russe*, 1903) as a case of extrauterine pregnancy at term operated upon three years after the death of the fetus, does not seem from the abstract published in the current number of the *Annales de Gynecol. et d'Obst. de Paris* to have been a case of extrauterine pregnancy at all. This scepticism is based upon the fact that the entire sac was enucleated quite like a sessile tumor; that no fetal structures were mentioned in the description; and the uterus and adnexa were found to be normal at the time of operation.

General Observations.—This small group of cases, taken as they have occurred in my own practice, together with the additional ones that have been selected equally by chance from the current literature, brings up points which but a few years ago were subjects of earnest controversy and which in several quarters are not yet accepted as settled. Thus, it was scarcely more than a decade ago that Tait found it necessary to exercise all the emphasis of which he was capable in proclaiming the mere existence of such a condition as extraperitoneal gestation.

The profession seemed remarkably reluctant to accept what he urged that he had observed—namely, that the Fallopian tube was capable of rupture between the layers of the broad ligament, and the ovum thus escaping could survive and develop outside of the peritoneal cavity. About this time, however, Berry Hart had a case upon which after death he made frozen sections, demonstrating the existence in that case of an extraperitoneal pregnancy. A little later Bland Sutton and Greig Smith added their confirmatory observations. Such members of the profession as had not seen these cases, though they were unable to accept the disinterested testimony of competent observers, looked upon the question as settled. There were others, however, who acted upon the assumption that that which did not fall within the range of their immediate experience could not exist, and still clung to the negative side of the controversy. It is hardly to be imagined, however, that individuals of this particular sort can still be found who will insist upon a negative position relative to this question. It is to be conceded, however, that,

as Tait pointed out, this class of cases consists of a small minority of extrauterine pregnancies, although I do not remember of any statistics on the subject from his own great work. A. Martin, however, found the condition 7 times in 77 cases; Kelly in his book states that he saw it twice in 23 cases of ectopic pregnancy occurring in 1,000 abdominal sections. The cases which I have here given from my own practice represent a proportion of 3 to 56, not counting 4 additional cases of primary extraperitoneal rupture that I have operated upon at the time of, or immediately following, the accident. This, it will be seen, makes a total of 7 out of 56 cases—a proportion greater than that observed by either Martin or Kelly.

A little confirmatory light is thrown upon the natural history of ectopic gestation by a study of the case which I have presented. I mention this fact in full recognition of the truism that an individual case may demonstrate a concrete fact but cannot establish a general principle. The histories given, however, confirm the well-known fact that the liquor amnii is the first element to disappear by absorption following the spurious labor, and the placenta and the soft parts of the fetus are successively the next parts to go. The time involved in the absorption of these various structures cannot be determined by any observations that I have yet seen recorded, and I fancy can never be reduced to general terms, because absorption, like any other process in the animal economy, must depend for it s rapidity and its effectiveness upon a variety of conditions.

In the three cases that came under my immediate observation, one at three months and the other at five months after term, the fetus did not present widely differing conditions. The sphacelated areas were possibly more extensive in the case of longer standing. In the third case, however, the soft structures of the fetus had entirely disappeared. This operation, it will be recalled, was done in the fifth year after the death of the fetus. Just at what stage dissolution and subsequent absorption of the soft parts had been effected could not, of course, be determined. A much more practical lesson, however, one having a direct bearing upon the time and character of the operation to be performed for the relief of these cases, is to be drawn from the conduct of the placenta following the death of the fetus. The cord was intact but not patulous in the case operated upon three months after the death of the

fetus. It was intact but in a state of partial dissolution in the second case, while in the third it had entirely disappeared.

The placenta proper had undergone a corresponding degree of change. Thus in the three-months case there were very pronounced areas of vascularity remaining at the time of the operation; in the six-months case there were likewise some areas that bled to such an extent as to make it seem improper to attempt the immediate enucleation of the placenta; while in the case of long standing not a vestige of the placenta could be found. It would seem, by a comparison of my own cases with the others embraced in my paper, that the conduct of extraperitoneal gestation differs widely from that which takes place when the gestation sac is within the peritoneal cavity. Thus in my three cases there were no deposits whatever of lime salts and consequently no tendency whatever to the development of lithopedia; nor was it clear that there was a tendency to mummification, such as was observed more particularly in the case reported by Murphy.

It seems, therefore, that so far as these very limited observations are suggestive of treatment a few practical lessons may be drawn: thus, apparently the policy advocated by some writers to wait for the development of innocuous lithopedia is a mistaken one; that is, it may be valid as applied to intraperitoneal gestation, but is dangerous when the embryo develops in the extraperitoneal locus. In other words, the tendency to the formation of lithopedia may be relied upon in the former, but is rather to be discredited in the latter class of cases. There is, however, an obvious advantage in a certain amount of delay, presupposing, of course, the absence of infection, and the consequent freedom from general sepsis. The difficult problem in all of these cases when subjected to early operation has been the disposition of the placenta. Mortalities in the early reports of cases come first from hemorrhage; second, from infection. For it is to be remembered that the site of the placental implantation is very likely to be, as it generally is, one to which ligatures cannot be safely applied and in the event of enucleation of the placenta, recourse must be had to hemostasis by pressure. It is furthermore to be recalled that the enucleation of the yet vascular placenta involves the opening of numerous venous orifices each one of which, and even the intervening lymphatic structure, may become an infection atrium.

In view of these facts it is therefore wiser, in the absence of

active symptoms to the contrary, to wait from two to three months before attempting the removal of the extraperitoneal gestation. At this date the vascularity of the placenta is liable to have ceased, and its enucleation in whole or in part, as exemplified in two of my cases, can be safely effected. A much more prolonged delay is, however, hazardous; even in the absence of septic infection from without the absorption of the products of dissolution causes a low grade of sepsis associated with hectic and a consequent loss of flesh and strength. As the soft parts are dissolved, the ends and angles of the bones in turn become areas of mechanical irritation and extreme pain is experienced when the patient moves about.

In the cases of intraperitoneal development of the gestation, some general principles apply, although it would seem that the tendency to the formation of lithopedia is greater inside the peritoneum than outside. In this connection, however, one has brought forcibly to mind the fact insisted upon by Tait, and as many of us have since confirmed, that the digestive power of the peritoneum is sufficient primarily to destroy the identity of the fetus, particularly in the more gelatinous states of its development. The observations of Murphy and others, however, seem to be conclusive that lithopedia may develop within the peritoneal cavity. If we may rely upon this tendency, and to what extent we can thus rely I am not prepared to say, a more protracted delay may be advised. I am not sure but that in the absence of active symptoms to the contrary a longer delay is advisable under any circumstances, when it is known that the gestation sac lies distinctly within the abdominal cavity. I say this because the placental implantation is liable to accident over a very considerable area of peritoneal surfaces and may nvolve several of the viscera. It is, therefore, highly important that its vascularity shall have been arrested before any attempt is made either at its enucleation in whole or in part

The operation to be adopted in any of these cases must depend absolutely upon the conditions presented at the time. No general rule of procedure can be laid down because no two of these cases so far recorded have been identical in the anatomicopathologic conditions which they have revealed. A few general principles ought, however, to guide the operator. (1) He ought to take care not to provoke an uncontrollable hemorrhage. (2) He ought, if possible, to avoid denuding

a surface which may become an avenue of infection, the elements of which in many instances cannot be avoided in these cases. (3) He ought, finally, to avoid violent efforts at enucleation, which will cause serious damage to the intestines or other organs that may be involved in the placental attachment.

It was these considerations, no doubt, which prompted Martin to adopt the technic which found applicability in general terms to the three cases which I have recorded,—a technic which Pozzi has denominated marsupialization. The term seems to be well conceived, implying as it does the temporary establishment of a pouch, such as the marsupials have for the development and subsequent care of their offspring. It is an operation, however, which is not to be employed in any case in which complete removal of the gestation sac and its contents can be practised with safety.

DISCUSSION.

DR. CHARLES L. BONIFIELD, Cincinnati.—Dr. Reed's paper is very interesting and is worthy of discussion. I am sorry Dr. Reed is not here. There is one question I would like to ask, and that is, how we are to tell whether the pregnancy is extraperitoneal or intraperitoneal until the abdomen is opened? I have never been able to make the diagnosis.

I have had two interesting cases of extrauterine pregnancy I should like to report briefly. The first was operated on three or four years ago. In this case the fetal bones were carried for seventeen years, so far as we could ascertain. The woman gave a typical history of extrauterine pregnancy and of false labor. She finally came under my care for the removal of a large fibroid which proved to be undergoing sarcomatous degeneration. The right ovary contained a small dermoid cyst. The skeleton was large, and the fetus evidently had gone to term and was carried seventeen years. The bones were subperitoneal.

The other case I operated on about one year ago. In it the child apparently went to term in the Fallopian tube without rupture occurring. She was having false labor when I saw her, a large dose of morphine was given hypodermically to stop the pain and she was removed to the hospital, where I operated on her the following day. The uterus and gestation sac were removed en masse. The hemorrhage was quite severe, but was controlled without great difficulty. The child is still living.

DR. LOUIS FRANK, Louisville.—I would like to put on record

in the transactions of this association two cases that have been reported and specimens shown before one of our local societies.

The first of these was of the typical extraperitoneal variety. The fetus sac was subperitoneal. The fetus developed in the left broad ligament, lifting up the peritoneum, so that the placenta was largely attached to the denuded posterior surface of the uterus and the broad ligament on the left side. The connection between the sac and the point of rupture is still evident in the specimen. This woman had difficult labor pains, and was abandoned by her attendant in the country because he felt there was obstruction, and the child could not be delivered. Believing this, he made a hasty retreat. She was left alone, and after several days the discharge and pain ceased. The woman was taken out of bed and sent to my clinic, five or six or eight months later. With the exception of a history of missed labor, there was hardly anything to indicate that a fetus had been developed. She was not sure. She had given no symptoms of any trouble during pregnancy whatsoever. An *x*-ray examination showed nothing for diagnostic purposes; still, from the history we believed it was a case of ectopic pregnancy, and operated on her. After the sac was opened an attempt was made to separate the placenta. Even at this time the hemorrhage was quite copious, and it was decided to do a complete extirpation of the sac and uterus. Accordingly, a complete hysterectomy was done. She developed a fecal fistula but otherwise her convalescence was uneventful, and she left the infirmary at the end of the third week. This case was one of the typical subperitoneal variety. The fetus developed primarily in the tube, ruptured into the broad ligament, and continued to grow from the posterior aspect of the cavity.

In the other case the fetus developed inside the peritoneal cavity itself. This woman had gone on up to about the eighth month, when the fetus died. She went along for four or five months more, and was operated upon in February of this year. In this case the fetus lay transversely in the upper part of the abdomen; the amniotic sac was adherent, passing down the cord, and the placental implantation was on the right side, and lying in the right iliac fossa. This patient had a large quantity of albumin in the urine, as well as quite a large percentage of sugar. She was in bad condition. The child was removed. We merely ligated, tied off the cord closely, left the placenta and closed the abdomen without drainage. She recovered after several weeks. The sugar disappeared from the urine. According to the latest reports from her physician, there was still some albumin in the urine; the uterus was still somewhat enlarged, but otherwise she was in very good health. She lives in the country and follows a household occupation.

DR. J. HENRY CARSTENS, Detroit.—Probably we have all had such cases in our experience as Dr. Reed has reported, and one thing I have noticed is that the longer the fetus has been dead,

the more favorable the case is to operate on. As a general rule, the placental circulation is entirely stopped. In these cases of long standing we can peel out the placenta without any trouble, if the fetus has been dead for a year or more. It may be best in some cases to wait, to watch them carefully, to see if sepsis develops, but not until the placental circulation has been stopped, absorption taken place, and more or less fatty degeneration has occurred. In these cases you can clean out and drain the sac. Sometimes you may be able to remove the entire contents, sac, fetus, and placenta. I recall a case where the fetus had been dead for three years.

If there is any point I would criticise in regard to this question it is that in nearly all these cases we stitch the sac after draining. I understand the sac was stitched to the skin in these cases. That is bad practice. If you do that, you have no union of the muscle to fascia, and the result is a bad hernia. Ordinarily, you can take the sac, pucker it up in the shape of a purse-string, and stitch it to the lower angle of the wound, making an opening an inch long, large enough for drainage. You can sew it up and stitch the sac carefully to the edge of the peritoneum, the transversalis muscle and fascia, cutting off all the rest. Afterward you go back and take the rectus muscle and close over it. In this way a hernia is not so liable to occur, a condition sure to result in the other instance.

DR. MCMURTRY (closing the discussion for Dr. Reed).—I think the motive of the writer of this paper was to direct attention to the course so be pursued in these exceptional cases. A great many cases of extrauterine pregnancy at term have been operated, and after term generally, regardless of the disposition of the sac. In the transactions some years ago I contributed an interesting case in which operation was performed after a spurious labor, removing a dead fetus. I found in the literature of the subject also some valuable contributions made by Dr. Price, which are to be found in the transactions of the association. I recall one case reported which seemed to be promising, where the plan of marsupialization was carried out, and death occurred from hemorrhage from the placenta afterwards. The placenta broke down, and the baby died. Cases of ectopic pregnancy were reported in the earlier period where the fetus was extensively developed. I am not referring now to cases in which there was primary rupture. Cases were reported where success was met with by the enucleation of the placenta. Some of them were reported by Dr. Eastman, of Indianapolis, as illustrating this point, and there got to be an impression in the profession at the time, which prevails to a certain extent to-day, as the result of the teaching then, that in all cases the thing to do is to remove the placenta. In the majority of cases this is practicable. Mr. Tait called attention to the fact that it was a long time after the death of the fetus before extensive changes took place in the vessels of the placenta, and he maintained in

some instances there were strong evidences of the placenta having enlarged after the death of the fetus. So the subject has advanced along those lines; but the whole tendency of modern teaching has been toward the establishment of the invariable rule to leave in the placenta. But by more expert and complete methods of separation of the placenta we can remove the whole mass, which can be done in some cases, but not safely in all.

The motive of Dr. Reed's paper is to point out that in these exceptional cases the best welfare of the patient is subserved by a less radical procedure, and, as he states, no rule can be formulated, but that the anatomico-pathological condition revealed by the operation should indicate the procedure of choice at the time. I have no doubt that a good purpose will be subserved by the publication of this paper in indicating that there remains a class of cases of ectopic pregnancy near, at, or after complete term of utero gestation, in which the best results can be obtained from the less radical procedure, and from stitching the sac, and allowing some time to elapse before removing it.

A FURTHER CONSIDERATION OF MESENTERIC CYSTS.

BY

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Indianapolis.

AT the St. Louis meeting of this association I reported a case of mesenteric cyst, presenting therewith the specimen obtained by operation. Since then I have had the rare fortune of encountering a second case, the report of which I will offer at this time.

The fact that two such cases have fallen into my hands, and that too within a year and half's time, induces me to think that these growths may be more numerous than has generally been believed, and that either may go unrecognized even through successful surgical treatment, or else sufficient importance has not been attributed to this subject to secure the reports of all cases which are met with. Certainly every case ought to be recorded, and its character carefully studied, as it cannot, as yet, be said that our knowledge of these growths is complete. Throughout medical literature, as exploited by Moynihan, Treves, and others, references are made to about one hundre and fifty cases, the first one having been reported by Benevieni in 1507; a post-mortem finding, as indeed have been most of the others reported in all the centuries since then.

Of the cases treated surgically the diagnosis has been necessarily faulty,—usually "ovarian tumor," "pancreatic cyst," "wandering spleen" or "floating kidney." Very generally the true condition has not been considered as one of the possibilities although it is to be borne in mind that these growths are encountered quite occasionally, and the subject merits our consideration.

As the mesenteric folds enclose connective tissue, fat, lymphatic vessels and glands, bloodvessels and muscular fibers and certain remnants of embryonic life, it is really surprising that this is not more prolific as a cyst-bearing region.

Various attempts at classification have been made; that of

Moynihan, embracing serous, chyle, hydatid, blood, dermoid, malignant and sarcomatous cysts, being the one most generally accepted, although certainly not free from objections. Any classification based upon the existing character of the cyst wall is faulty, as shown by Sutton, who refers to the fact that small parovarian cysts are lined with columnar epithelium, which is ciliated in some specimens; in large cysts it becomes stratified and in very big cysts it atrophies.

Dowd suggests that a separation takes place from time to time from the Wolffian body or the germinal epithelium at an early period of embryonic life, and that it is not strange to have such portions carried into the mesentery in the course of development and there form cysts. Blood cysts then would simply be preformed cysts, into the cavities of which hemorrhage has taken place, and likewise chylous cysts would be similarly preformed cysts, with an effusion of chyle into their cavities.

Demòn reported a multilocular mesenteric cyst, one chamber of which was filled with blood while another contained chylous liquid, a condition which might be explained on the theory just referred to.

Drs. Fehleisen and Nathan, of San Francisco, removed a large mesenteric cyst, which showed walls largely composed of muscular fibers, strongly suggesting in shape and size the muscular arrangement of the small intestines. It was considered a teratoma, and is also in support of Dowd's position.

Unfortunately many of the cases reported were not passed upon by the pathologist, which is another hindrance to our progress. Just what proportion show an epithelial lining cannot, as yet, be est mated. Following the suggestion heretofore quoted, that there has been a time in every case when epithelium was present, we may expect to find it in the smaller growths and that the large ones will be devoid of this element. This also tallies with my experience in the two cases here referred to, as many epithelial cells were found in the small cyst, but no trace whatever could be discovered in the large one. Although a positive diagnosis is impossible, and cases vary greatly in symptoms and clinical history, still there are certain resemblances which have been so frequently noticed as to acquire practical value in diagnosis. Most of the cases carefully studied have exhibited repeated attacks of severe abdominal pain, which is intensified in walking; disturbances of digestion, which are sometimes excessive; nausea is commonly but not invariably present. One peculiar and

very interesting clinical feature relates to the history of the development of the tumor itself. In numerous instances it was first noticed after a fall or some unusually severe exertion.

Dr. O'Connor, of Buenos Ayres, treated a man for over two years, during which time he suffered from serious indigestion and abdominal pain One day he alighted with some violence from a moving street car and was seized immediately with severe abdominal pain and noticed a lump below and to the right of the umbilicus. Dr. O'Connor examined him on the same day and describes the tumor as about the size of a cocoanut, well defined and tense. Fluctuation was obtained, and apparently great mobility, but this could not be thoroughly tested on account of the great soreness present. The man was operated and the tumor found to be a cyst of the mesentery, which was treated by drainage; it contained chyle.

Dr. Rasch, of Tottenham, Eng., also makes a report which suggests some relationship between violent exertion and the first appearance of the tumor. A girl, 21 years of age, lifted a heavy trunk, and some days after was seized with severe abdominal pain; three weeks later she went to the hospital, when a large, round, elastic swelling was discovered in the middle of the abdomen, extending to the left; no diagnosis was made; operation showed cyst of the mesentery containing chyle; the treatment was drainage; a portion of the cyst wall was excised and under the microscope was found devoid of epithelial lining.

Dr. Beach, of the Massachusetts General Hospital, reports a case characterized by soreness and pain in the epigastrium after eating; eructations of gas; constipation; appetite fair; four or five months later, *during an attack of colic and vomiting*, a movable lump was noticed in the abdomen; the tumor could be moved from just above the symphysis pubes to a position corresponding to the right kidney; diagnosis not made, but floating kidney suspected; operation demonstrated chylous cyst of the mesentery. Undoubtedly the explanation of the apparent sudden development of these tumors is to be found in the fact that the mesentery allows such great mobility that the growing mass may have been for years reposing in the pubic cavity, and is only dislodged by the violence of some extraordinary exertion or accidental occurrence, and is for the first time brought to a position which forces its recognition by the patient or her physician; this also explains the frequent disappearance of the tumor after it has been discovered.

My first case, reported last year, was a chylous cyst which was enucleated.

CASE II.—Mrs. S., American, age 34 years; family history negative; always had good health; married fifteen years; three children, 13 to 5 years; appetite fair; complains at times of indigestion; no vomiting nor pain; occasionally constipated. Recently during an attack of la grippe, the family physician, Dr. B. A. Brown, of Brightwood, Ind., discovered a fluctuating tumor about the size of a child's head occupying the right lower abdominal quadrant; thereafter it was sometimes found in the median position and extending into the pelvis.

I was asked into the case by Dr. Brown, and on examination found the pelvic organs practically normal, the tumor having apparently no connection with the uterus nor its appendages. The mass was fluctuating and very movable in every direction. It was also non-sensitive, permitting free palpation without giving pain. Like the first case, which I have reported, the most striking characteristic was the very great and indeed extraordinary mobility, no attachment whatever being defined. The very suggestive mobility impelled me to express the probability that we were dealing with another mesenteric cyst, although I did not feel warranted in making a definite diagnosis.

Operation was performed at the Deaconess's Hospital, Indianapolis, with the assistance of Drs. Bernays Kennedy and John A. Pfaff; an incision to the right of the median line outside the rectus muscle. The tumor was at once exposed, and after evacuating three pints of dark, bloody fluid, I was enabled to determine the relationships of the sac. It was found to be situated between the folds of the mesentery, involving about eight inches of the lower portion of the ileum. As enucleation would have entailed an ugly resection at the junction of the small with the large gut, I determined upon drainage as the safest procedure, stitching the sac into the wound and using half-inch rubber tube. At the end of ten days the discharge had ceased entirely and the tube was permanently removed and the opening allowed to close up slowly under aseptic dressing.

It has been now more than eight months, and so far there has been no evidence of refilling of cyst, and the woman is enjoying her usual health.

A small portion of the cyst wall was removed for examination, and the pathologist failed to find any trace of epithelium.

SOME OBSERVATIONS RESPECTING THE TREATMENT OF FACE PRESENTATIONS.

BY

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TYPICAL cases of face presentations are not common; undoubtedly nearly all cases of such presentation are originally brow positions, but by some irregular uterine contraction and other incidental factors they change to the character of face presentation. This has been made evident by finding previously, on examination, the anterior fontanelle and the sagittal suture before the alteration has taken place. The older statistics usually give the proportion of face presentations as one in about every three hundred, or sometimes one in two hundred and fifty. In my own practice I have found the tendency has been somewhat more frequent,—once in a hundred and fifty. Undoubtedly many cases go unrecognized.

So far as my own observations have been made, face presentations may take place in consequence of a disproportion in the development between the anterior and posterior structures of the neck and thorax, presenting a condition in which the ability of the parts to sustain adequate flexion of the chin upon the thorax was found to be very deficient.

The two principal positions of presentation of this character are those in the direction of the symphysis pubis and of the sacrum. The fact that the fronto-mental and bi-temporal parts present to the plane of the straits, and the base or root of the nose to the center of the pelvis shows that the fetal parts are insufficient to maintain normal flexion. In place of having the nape of the neck of the child, as in a normal position, exactly behind the left acetabulum, and the bregma or sinciput to the right sacroiliac synchondrosis we find the forehead pointing to the left iliopectineal eminence and the chin to the right sacroiliac synchondrosis; or second, instead of finding the back of the neck of the child directly behind

the right acetabulum and the sinciput to the left sacroiliac synchondrosis, we have again the forehead presenting to the right iliopectineal eminence and the chin to the left sacroiliac symphysis, and other variations instead of the several normal cephalic presentations.

The principal obstacles encountered in face presentations are from the fact that the occipitobregmatic diameter is superadded to the anteroposterior diameter of the child's thorax when the head is forced to descend into the pelvis, and this condition is particularly likely to occur in cases in which the forehead or sinciput presents anteriorly and the occiput becomes crowded back upon the spine of the child. This is the class of face presentations in which the life of the child is most imperiled and the one in which active measures for relief should be timely instituted. The chin should be made, if possible, to rotate toward the symphysis pubis, for by effecting such change there would be less distance for the chin to glide for delivery; should the chin, however, be permitted to rotate into the hollow of the sacrum, it would have to pass at least five times the distance before it would be possible to be delivered.

In those cases in which the child begins to descend with the face anteriorly in the superior strait, I have sometimes succeeded in effecting delivery by resort to podalic version, and occasionally by the cephalic method. I have always found it best when it becomes necessary to change the position, to do so before the membranes have ruptured; the case then should be converted into an occipital presentation, and in so doing I always endeavor to produce flexion and rotation. Forceps I have applied with successful results when the vertex was coming under the arch of the pubes and I had been unable to effect the necessary rotation for delivery. I never make use of the perforator when the forceps fail unless I have evidence that the child is not living. In cases of face presentation, in which the position of the head would necessitate the carrying of the blades of the forceps high up above the pubes, I have succeeded sometimes by resort to version. In some cases, when the child was still alive, I have resorted to symphyseotomy, and the operation proved to be a most successful method for delivery. There are some deviations which have to be changed to face presentations, as, when the forehead presents and the position cannot be converted into an occipital

presentation. If the occiput is anterior in face presentation, natural delivery becomes impracticable, for it has long since been known that should the chin deviate toward the hollow of the sacrum, it would necessitate passing at least twenty centimeters (thirteen centimeters of the sacrococcygeal incurvation and seven centimeters of the distended perineal tissue) before delivery could be accomplished; such a passage of the chin is almost always impossible, owing to the shortness of the child's neck. In such cases it is all-important so to deviate the movements of the chin that it will glide so as to rotate to the symphysis pubis, where it will have only about three or four centimeters to traverse before it can be freed; otherwise, as before stated, safe delivery cannot be effected without resort to extreme radical measures.

Formerly, attempts were made to change a face presentation to an occipital position by the production of flexion and rotation through the use of the lever. Such expedients I have found are almost always futile, and only result in allowing matters to proceed so far as to make it more difficult to convert the frontoanterior position into the chin presentation.

Some operators seem to depend for the most part on the use of forceps for effecting delivery in those cases of face presentations in which the natural powers of the woman have failed. It must be readily admitted that in some cases of this character the forceps will suffice, in other cases version will be more practicable; in other instances for the relief of the mother and the safety of the child, symphyseotomy as before remarked will be a surer and much more satisfactory method of proceeding; especially will it be in those cases in which the head of the child is preternaturally large, or is disproportionate in size to the mother's pelvis, and in which the vertex has presented and the chin has rotated into the sacrococcygeal curve of the pelvis and has become too firmly fixed.

It has sometimes been stated by authors that as a general principle, face presentations may terminate favorably with scarcely any assistance being offered by the accoucheur, the only drawback met with being much delay in the delivery. Such conclusions are far from being satisfactory. It may be affirmed without fear of contradiction that the mortality of mothers in such cases is upward of six per cent., and that for the children upward of twice that amount—to say nothing of the discoloration and disfigurement of the child,

and sometimes—not infrequently—leaving permanent injuries as a result. Pressure symptoms and exhausting fatigue to the mother, cerebral and cerebrospinal injuries to the child, besides injuries to the veins and other vessels of the fetal parts may be enumerated as some of the untoward lesions left as results.

Beside the causes above mentioned as contributing to face presentation may be mentioned abnormal narrowness of the pelvic cavity, especially that at the brim or superior strait; preternatural size of the posterior cervical and thoracic portion of the fetus; excessive or irregular development of the fetal head more particularly in the occipital portion, dolichocephalic head; morbid production of the liquor amnii; long-continued impaction of the descending colon of the mother, whereby the gravid uterus becomes forced obliquely to the right; lateral and adherent displacement of the uterus as a result of previous inflammatory processes; undue prominence of the fetal abdomen with a corresponding deficiency in the dorsal portions. The existence of any of these peculiar abnormal features tends to the production of face presentation and, therefore, calls for early interference through artificial assistance before rupture of the amniotic membranes and impaction have taken place.

As before observed, a case though unaided, may make a favorable termination, especially when the condition has been largely due to an excessive amount of liquor amnii and the consequent extension of the mobility of the fetus; nevertheless, the medical attendant should be well on his guard through careful diagnosis to intercept abnormal relations before they have become practically irremediable. Finally, it may be again said that in regard to the employment of further measures of treatment that it is all-important that an early diagnosis of the condition be made

Here comes the necessity of having acquired proficiency in making an external examination; more particularly is the advantage of that knowledge, tactus eruditus, useful before the membranes have ruptured and the fetal huad, brow, bregma, sinciput or occiput has engaged at the sxperior strait of the pelvis. Schatz's method for relief by external manipulation with the hand, by forcing the breech toward the feet of the child and downward, and the thorax backward and upward, has its advantage as an initial measure of proceeding; when, however, the maternal pelvis is narrow and the fetal head has become

dolichocephalic, other measures will be demanded, as internal digital manipulation with the fingers against the chin, brow or vertex, or canine fossa of the superior maxilla. This is especially serviceable in mentoanterior face presentations before impaction has taken place. As before remarked in mentoposterior presentations, rotation of the chin should be made toward the symphysis pubis. If the child is alive and the case is that of the mentoanterior presentation and impaction is taking place, and the maternal pelvis is not too narrow, forceps may advantageously be used, otherwise external manipulation as advised by Schatz and version should be had recourse to. For mentoposterior presentations when seen late and the position of the face cannot be conveniently changed and the child is not dead, symphyseotomy offers the best method of procedure for saving both the mother and the child.

When called early to a face presentation and the diagnosis can be clearly made out, chiefly by external examination, and the membranes have not ruptured, or if ruptured and there is a tendency to prolapse of the funis, and the child is alive, and the os or cervix uteri has undergone a considerable degree of dilatation or is dilatable, speedy resort to podalic version will for the most part prove highly satisfactory.

THE TREATMENT OF PUERPERAL ECLAMPSIA.

BY

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THE treatment as outlined below is based upon the theory that eclampsia is due to an accumulation of a toxin or toxins within the maternal organism, resulting from an imperfect or insufficient elimination of the effete elements produced by the fetal metabolism. The cause or causes of puerperal convulsions still rest upon this theoretical ground and, in the absence of a better explanation, it is accepted by all. The exact nature of the poison or poisons is unknown.

For the sake of clearness and brevity, the subject is arranged as follows:

(1) The Prophylactic Treatment.
  (*a*) Before appearance of symptoms.
  (*b*) After appearance of symptoms.
(2) The Curative Treatment.
  (*a*) To control or abbreviate convulsions.
  (*b*) To protect the patient against injuries during the attack.
  (*c*) To remove the supposed cause of the eclamptic seizure.

(1) *The Prophylactic Treatment of Puerperal Eclampsia.*
  (*a*) *Before the appearance of symptoms.*
  (*b*) *After the appearance of symptoms.*

(*a*) *Prophylaxis before the appearance of symptoms.* It is indicated in every case of pregnancy and consists of an intelligent management of the pregnant state.

This implies that all the emunctories of the body, the kidneys, the liver, the intestines, the lungs, and the skin, of the pregnant woman must be kept in perfect order.

This, in turn, means a careful observation of the patient's surroundings, of diet and of dress, of sufficient rest and sleep and an especial care of the functions of the liver and kidney,

regular intestinal evacuations, invariably clean skin, perfect freedom of respiration, and daily judicious exercise in the open air.

On an occasion like this it is not necessary to consider all of the means of the management of pregnancy in detail. It is only of importance to call your attention to the same and to add that, in an earnest and well-directed conduct of the pregnant state lies the physician's greatest power to prevent, in very many instances, even the prodromal symptoms of eclampsia.

(*b*) *Prophylaxis after the appearance of symptoms.* In the presence of a well-marked edema, anemia, hydremia, with or without albumin in the urine; severe and oft-recurring headaches, gastralgia, tinnitus aurium, dimness or difficulty of vision, dizziness, general indisposition, restlessness, insomnia, or irritability of temper, a definite and persistent plan of treatment for the relief of any or all of these symptoms must be adopted.

If the symptoms be few and mild, the strict observance of the ordinary rules of the hygiene of pregnancy, if they were not observed before, will suffice in many cases. If, however, symptoms manifest themselves notwithstanding a strict observance of the well-established rules of the management of a normal pregnancy, or in cases where this is not done, groups of the prodromal signs clearly manifest themselves, a more vigorous plan of treatment is indicated. The following course is indorsed by the best authorities everywhere:

Milk diet, strict and absolute, from the start. Milk is recognized as "a complete aliment reconstituent, quickly and easily digested";[1] it leaves no toxic residue in the intestinal tract. Water may be given ad libitum. As the patient's condition improves, fish and white meats may be added to the diet.

Catharsis must be prompt, free, and regular every day. While the means must necessarily vary according to the habit and general health of the patient, Winckel's pill of aloes and colocynth, with or without calomel, before bedtime and followed by a saline draught in the morning, is a very reliable remedy. In cases of severe constipation or great urgency, calomel or compound jalap (singly or combined), may be given at night in full doses; to be followed by a dose of one of the stronger sulphur waters, like the Rubinat, in the morning. Excessive catharsis should be avoided at all times.

Calomel, combined with bicarbonate of soda is, perhaps, the best remedy when the liver is involved, to evacuate the bowels.

In the presence of well-marked prodromal symptoms or of an impending attack of convulsions, five grains of calomel in conjunction with ten or fifteen grains of compound jalap, may be administered. A frequent and annoying complication is chronic constipation. Much will depend upon the physician's skill and experience in combating this difficulty. To meet many of the indications Edgar advises a tablet composed of calomel, digitalis, squills each gr. ½ (0.66) and muriate of pilocarpine 1-20 of a grain before bedtime; to be followed by a full dose of Villacabra water the next morning.

Hot baths, daily for a few days in some cases and two to three times a week in other instances, are the best means to render the skin clean and active and, when accompanied by large draughts of hot water, light tea or milk, the kidneys are not only greatly relieved, but their activity is very favorably influenced thereby. The hot sponge, or hot-air bath may be substituted for the hot water bath in the absence of a bath tub. The fact that these measures may cause abortion or precipitate labor must not be forgotten; though either event may be welcome and even very desirable at times. The action of the skin may be increased by gentle massage immediately after the hot bath or pack, and maintained by the wearing of woolen or flannel underwear.

Pilocarpine as a diaphoretic is, as a rule, contraindicated, but some authors indorse its administration in the preeclamptic stage in the absence of heart disease.[2]

Glonoin, from one to two minims is highly recommended as one of the best diuretics or rather heart stimulants. Bacon advises rest instead of stimulation of the kidney, arguing that a kidney already injured and inadequate should not be subjected to irritants which are likely to increase its injuries. He excludes especially the metals, coal-tar products, volatile oils, aloin and urotropin.

Fresh air, an abundance of fresh water, gentle exercise, calesthenics and massage are conducive to rapid elimination of the effete matters from the maternal system. If the condition of the patient forbids outdoor exercise, free ventilation of the room, in conjunction with moderate calesthenics and massage, is the best substitute.

Dress should be so arranged as to allow the most perfect freedom of respiration, locomotion, and to correspond with the season of the year or the climate in which the patient lives.

Woolen or flannel underwear should be insisted upon, in cold weather at least, and it will benefit the patient greatly if either kind be worn at all times.

Sleep and rest in bed are absolutely necessary when the patient is weak and the extremities edematous. The former is most effectually induced by small, but frequently repeated, doses of chloralhydrate per os or per rectum. From five to ten grains, well diluted, may be given by the mouth every half hour or hour until sleep is secured. Double or even treble the amount may be thrown as often into the rectum if the stomach is irritable. This drug may be daily administered in small doses for a long time without any deleterious effect upon either mother or child. It is all the more indicated in severe anasarca, bronchitis with pulmonary congestion, digestive disturbances, and headaches. When there is anemia or hydremia, suitable iron preparations must be prescribed. Basham's mixture is one of the best[3].

(2) *The curative treatment of puerperal eclampsia.*

Obstetric authors and experienced accoucheurs usually recognize three distinct varieties of puerperal convulsions: (*a*) The malignant variety, which does not yield to treatment at all. (*b*) The benign variety, in which recovery takes place spontaneously and (*c*) the variety of mean gravity, in which both course and cure are favorably influenced by careful and judicious treatment.

(When we compare this classification with Edgar's recent division of clinical types of pregnancy toxemia (*a*) will correspond to the acute and fulminant toxemia and the toxemia-coma without convulsions; (*b*) to the benign and pseudo toxemia, and (*c*) to the subacute and accumulative toxemia as well as the acid intoxication simulating hepatic toxemia.)

The gravity of the cases, too, varies according to the time of pregnancy, labor, and puerperium. The prognosis is much worse when convulsions supervene during pregnancy, the maternal mortality ranging between 35 and 50 per cent. and the fetal mortality between 65 and 70 per cent. The prognosis of intrapartum convulsions is more favorable, the maternal as well as fetal mortality amounting to about 25 per cent. In post-partum convulsions, the maternal mortality is reduced to about 7 per cent.

The prime object to be attained is:

(1) *To control and abbreviate the duration of the seizure.*

(2) *To protect the patient against injury during the attack.*

(3) *To remove the supposed cause of eclampsia.*

(1) *To control or abbreviate the duration of the convulsions*, the limited inhalation of chloroform, the hypodermic injections of veratrum viride and of morphine, singly or combined, and the administration of large doses of chloral per rectum have been, for many years, the principal remedies for this purpose. It is to be regretted that bleeding has been and is still absolutely rejected by many of our best authors. The writer agrees with Parvin who said: "It is as wrong to reject it entirely as it is to bleed always." Fordyce Barker's indications for bleeding "When the attack occurs before labor, if the pulse be strong and hard with fullness of the vascular system, and when the appearance of the face indicates vascular congestion, bleed at once," is as true a guide to-day as it was then. Copious bleeding is always contraindicated.

Chloroform by inhalation during the attack is universally employed, but it must not be forgotten that its long and continuous use may lead to fatty degeneration of the heart and impairment of the function of the kidney and liver.[5] Ballin[6] reports nine post-operative cases of acute yellow atrophy of liver following chloroform narcosis.

The hypodermic employment of the *tincture of veratrum viride* (first recommended by D. Baker of Eufaula, Ala., 1859, and since then by many others, but especially by Reamy of Cincinnati and Jewett of New York) has grown in favor with the profession, especially in this part of our country. Both Reamy and Jewett maintain that if 10–20 minims of this drug are injected under the skin every half hour or hour (gtts x every half hour or gtts every hour) until the pulse rate has been brought down to 60 per minute, convulsions will not occur thereafter if the pulse is kept down. My own experience with this remedy in the last ten cases tends to support this statement.

The administration of large doses of *morphine* (one to one and one-half grains to be repeated every two hours if the convulsions return), as recommended by Dr. Clark of Oswego, N. Y., and by Prof. Veit,[7] has not been received with much favor. Many, like myself, have made only one trial because of the threatening symptoms following. In my own case only one injection of one-half grain was given. The convulsions ceased. Within the next twelve hours, pulse fell to twenty-five beats and the respiratory movements to eight per minute. The patient recovered, but I have not had the heart to repeat this treatment. Morphine in large doses is now generally rejected, because it

not only prolongs the post eclamptic stupor but it "increases the tendency to death during coma by its interference with the elimination process."[8] The use of veratrum viride has, on the contrary, become more popular. It is by many regarded as a powerful nerve stimulant and cardiac inhibitor. The results with its employment have been very satisfactory with many obstetricians. Davis of Bridgeton, New Jersey, and Parvin have recommended the combination of tr. veratrum viride, five drops, with morphine ⅓ grain, to be injected under the skin with every recurring attack.

Chloral hydrate is more in favor abroad, especially in France and Germany, than in this country. When given to control convulsions, it has always been a disappointment to me. From 20 to 40 grs. may be introduced into the rectum at intervals of an hour or two. As much as 180 grs. and more have been given within 24 hours without ill effects. Chloral, like veratrum viride, lessens arterial tension, and is best tolerated in the bowel when suspended in mucilage. Veit gave to a young primipara 120 grams (1800 grs.) within one month without the least deleterious effect upon mother or child. Patient was the victim of severe anasarca, bronchitis, with pulmonary congestion, digestive disorders, and headaches. She had no convulsions. Chloral is one of the most helpful remedies in the pre-eclamptic stage.

The use of the *normal saline solution*, in moderate quantity under the skin and copiously per rectum, is highly spoken of by many recent authorities, and the writer has had good results with them in conjunction with other remedies.

The value of the *extract of the thyroid and parathyroid glands*, as recommended by Nicholson and endorsed by Bacon, of Chicago, and Davis, of Philadelphia, for the treatment of eclampsia, awaits further confirmation. Nicholson claims that it destroys the metabolic and other poisons, and that it is an efficient diuretic and nutritive stimulant.

The withdrawal of cerebrospinal fluid by lumbar puncture (Helme and Kroenig) for the relief of intracranial pressure, is a hazardous and doubtful procedure.

Oxygen inhalation is of value during and between the attacks, because of the danger of asphyxiation from impeded respiration. It stimulates the weakened heart and is an excellent remedy for the slowing of respiration, the result of prolonged anesthesia.

Any of the above means may be employed, singly or combined, during the attack, and, with the exception of chloroform, can be continued at proper intervals, after the convulsions have ceased, until the object desired has been obtained. If certain medicines are given in combination, the smallest effective doses should be administered in short intervals.

(2) *To protect the patient against injury during the convulsions* care must be taken to prevent her falling from the bed or striking against hard and sharp objects near her; the convulsive movements must not be restricted, nor the contracted fingers pried open; the tongue is best guarded against lacerations and biting by the teeth and the movements of the jaw by interposing a napkin or soft towel between them. This, too, prevents falling back of the tongue. If it has fallen back it must be pulled forward. The pharyngeal cavity may be kept as free as possible from the accumulation of fluids from mouth and pharynx by turning the face to one side and wiping the cavity with a cloth tied to the handle of a spoon; if the cloth-covered finger is used for this purpose care must be taken that it is not caught between the jaws.

(3) *Means to remove the supposed cause of the disease* from the system must be resorted to as early as circumstances will permit. Much of what has been said under the heading of "*Prophylaxis when symptoms have appeared*" holds good here. Prompt catharsis, diaphoresis, and cardiac stimulation must be instituted. The same means recommended above hold good here and may be carried out in the same manner, except when the patient is in convulsions or deep coma. If the latter, the bowels should be emptied by a copious and high enema, containing magnesium sulphate in solution. It is doubtful whether the practice of dropping croton-oil upon the tongue is of any value, indeed, it probably does more harm than good. If the hot water or air bath, or the hot-pack, or the dry or wet-cupping over the kidneys, in conjunction with the administration of tr. ver. virid., the hypodermic use of glonoin, and, perhaps, of morphine in moderate doses, is not attended by a marked improvement, the case is, probably, a hopeless one and even the prompt evacuation of the uterine contents will not prevent a fatal issue. There is another danger: In our anxiety for saving the patient's life, too many of the remedies recommended are employed at once, and thus the patient

is overwhelmed with drugs. This is worse than no treatment at all.

Notwithstanding that interruption of gestation by induction of labor, artificial delivery, or accouchement forcé, has not been attended with the good results so ardently expected, emptying of the uterus is the only logical mode of treatment in severe cases where a judicious trial of other means have failed to give relief. Spontaneous miscarriage, premature birth, or death of the child *in utero* have been, almost invariably, followed by an immediate and marked improvement of the patient and subsequent complete recovery.

If the results of artificial evacuation have been disappointing in the past, the fault may be, to a certain extent, with the method employed. All the means of inducing abortion or labor are slow and more or less annoying and irritating in character. This, in many cases, is sufficient to precipitate convulsions, if they did not exist before, or cause a recurrence if they did. Digital, manual, balloon or metal dilatation of the cervix, followed by immediate or slow extraction of the child, at any stage of pregnancy, or even in the beginning of labor, are means never devoid of violence, and nearly always attended by injury, and the dangers to the mother increase in exact proportion to the remoteness of obliteration of the cervix and dilatation of the os.

If, then, evacuation of the uterus is determined upon in any case, deep cervical incisions or vaginal hysterotomy, followed by forceps (or version) and extraction should be the means through which the uterine contents are removed if eclampsia comes on before the end of term. If the patient be near the end of term, vaginal hysterotomy may still answer the purpose, provided the child be not very large and in a favorable presentation and position. If the patient has concluded the period of gestation, but the cervix is not completely effaced, the os still closed, the child vigorous with, perhaps, strong indication of excessive development or, possibly, a pelvis not too ample or both, indeed, when there appears to be a distinct disproportion between passage and passenger, the conservative Cesarean section is undoubtedly a proper procedure in the presence of asepsis and a skilled operator. The same is true in cases of marked pelvic contraction or deformity of any kind, if the child has obtained the period of viability.

Digital, manual, balloon and metal dilatation should not be attempted, unless the parts involved can be quickly opened up and without injury. Shock, excessive hemorrhage and prolonged operative interference must be scrupulously avoided.

REFERENCES.

1. Parvin.
2. Edgar.
3. Vinay.
4. Green.
5. Kaltenbach, Duehrssen, Runge and others.
6. *Annals of Surgery,* 1903, 37, p. 362.
7. Veit begins with ½ gr. and increases the dose to 1½ to 3 grs. within four to seven hours.
8. Parvin.

ANURIA FOLLOWING SALPINGO-OOPHORECTOMY.

BY

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I WISH to put on record a case of anuria of thirty hours' standing, following double salpingo-oophorectomy, relieved by a secondary laparotomy. I have not had the opportunity of looking over the literature on this subject. I would like to preface my remarks by the statement that two or three weeks before this I removed from a girl, sixteen years of age, an intraligamentous cyst of the left side as large as my head. When I opened the abdomen I could not find the uterus. I was a little in doubt at first as to whether I was dealing with an intraligamentous cyst or a pregnant uterus. I finally found the uterus pushed far over to the right side and deep down in the pelvis and then the diagnosis was verified. The cyst was very large; it pulled out the broad ligament with it, and, as I have said, pushed the uterus far over to the right side. The peritoneum over this cyst was a quarter of an inch thick. I tied off the tube near the uterus; also the ligamentum infundibulopelvicum; I made an incision at the summit of the peritoneum along the anterior wall, and enucleated the cyst, without removing any of the peritoneum. After my dissection there was left a space as large as the cyst I had removed. I was extremely careful not to injure the ureter. I sewed the peritoneal edges, ventrally fixed the uterus, packed the broad ligament cavity with gauze through a small unsewed opening, drained through the abdomen, and removed the gauze gradually until the fourth day. Patient made a good recovery.

The case is interesting because of the danger of injuring the ureter; but I dissected close to the tumor and did not injure the ureter. I found the same condition, but much slighter, on the other side.

About three weeks ago I had another case of double intraligamentous cyst. The one on the right side was not quite

as large as that on the left. The latter was probably as large as a baby's head. The peculiarity of the cyst was that it extended so far out to the brim of the pelvis that I had to consider the ureter in its removal. I did the operation in the same way, but unfortunately was not able to get out the cyst on the left side, nor the one on the right side, although it was much smaller, without taking away some of the peritoneum on the posterior wall of the broad ligament. The denuded area was then covered by peritoneum, and I made the closure on both sides with continued catgut suture. After removing the tubo-ovarian cyst, which was intraligamentous on both sides, I ventrally fixed the uterus. I had enucleated the cysts on both sides with the fingers, keeping close to the cyst wall. I catheterized the patient's bladder after operation, and obtained only a few drops of urine, but no blood. I was informed, by telephone, the next day that the patient had not passed a single drop of urine. I saw her that afternoon, and in the twenty-four hours she had not passed any urine. There was no elevation of temperature, although the pulse was a little accelerated and quite tense. Since there was no urine in the bladder the idea struck me that in operating I might have cut the ureters. We catheterized both ureters and not a drop of urine came out. The left catheter passed in an inch less than the right, but neither passed more than 4-5 inches. I decided to do a secondary laparotomy to relieve the constriction of the ureters. I made a diagnosis of compression or kinking of the ureters due to the large area which was denuded of peritoneum on both sides, and which had to be sewed by peritoneal sutures. I made a vaginal incision in the cul-de-sac of Douglas, and found that the peritoneal cavity was free of urine. I found no urine in the abdominal cavity. Before this, however, we had again catheterized both ureters and I attempted through the posterior incision to feel how far the catheters went and what caused the constriction. But I could feel nothing at all. The patient was put in the Trendelenburg position, the abdominal sutures were opened through the first primary incision, and the peritoneal cavity was found clean. I then began to loosen the continued catgut suture on the right side and on the left side, and as soon as I did so out came urine from both ureteral catheters.

(Here Dr. Bandler went to the blackboard and demonstrated the site of the ureteral obstruction.)

If this (indicating) represents on either side the denuded area in the broad ligament from which the cyst was shelled out, and this (indicating) represents the highest point at which the ligature was put about the ligamentum infundibulo-pelvicum to tie the ovarian artery, I saw on this side at about this point (indicating) a stricture about the size of my little finger, which appeared to come up in this way (indicating), and on the other side there was exactly the same stricture. These proved to be the ureters and I must have nicked the ureter on the left side in cutting the peritoneal suture, for, on the left side a fine stream of urine came out into the abdominal cavity. As soon as tension was relieved, I covered the little hole in the ureter by passing a suture of the finest silk from the peritoneum through the ureter wall twice. It was my desire not to let leakage occur from the left ureter, so I had the patient put down in the level position and covering the exposed area with gauze, I had one of my assistants manipulate the catheters in the ureters while the patient was in that position. I could then see in the abdominal cavity how far these catheters went, but they only passed as far as this place (indicating), on the left side and no farther. I could see the tip of the catheter at the point I show you on this diagram, but had to be gentle in my manipulations on account of fear of perforation. I put my finger on the tip of the catheter at the place of kinking, depressed it, and under that impulse the catheter passed right up to the pelvis of the kidney. I then sewed up the peritoneum with interrupted sutures, in such a manner as not to compress either ureter, left the catheter in place twenty-four hours, and the patient made an uneventful recovery.

The only explanation I can offer as to this condition is that these ureters developed a kink in each one, probably as a result of the fact that the peritoneal sutures covered such a large denuded area as to exert a considerable amount of pressure; second, that the uterus, having been ventrally fixed, lifted up the uterine end of the broad ligament in such a way as to produce a kinking or twisting. I consider this kinking of the ureters due to a congenital anomaly, perhaps long ureters, for the reason that after all sutures were cut, and the uterus was freed from its adhesion to the abdominal wall, the catheter passed up the ureter only as far as the S-shaped curve.

DISCUSSION.

DR. LONGYEAR.—Did you pack these cavities?

DR. BANDLER.—I did not. These tumors did not extend so deeply as the first mentioned, but developed more toward the wall of the pelvis.

In this connection, I would like to mention another case which I had about five days ago. The diagnosis was one of double pyosalpinx. On examination I found on the left side a larger tumor than the house surgeon had signified to me, and at times, in making my examination, I could feel this tumor, while at other times it would disappear. I could not get it between my fingers. I made a diagnosis of double pyosalpinx and ovarian tumor in the left side. I removed both tubes and both ovaries and then found I had to deal with a large cystic retroperitoneal tumor, with the sigmoid flexure partially coming over it in the direction indicated in the diagram. At first, the thought occurred to me that it might be a retroperitoneal congenital tumor, possibly a dermoid. I incised the peritoneum over it, which was easily done, and loosened it to enucleate the tumor. I found the tumor was covered with fat which resembled very much a fatty capsule. As I dissected over the tumor, the thought occurred to me that I was dealing with a congenitally displaced kidney. I palpated for the left kidney and found none. The right kidney was found to be present. Not having any reason to doubt the efficacy of the secreting power of the displaced kidney, even though enlarged, I left it in place. The next day, in introducing the ureteral catheter, it passed up to the kidney pelvis on the right side and I found it was secreting. I also introduced a catheter on the left side and it went in six inches less than it did on the right side, and not a drop of urine came away. (Subsequently this kidney was found to be secreting, but slowly.) I now consider it a congenitally displaced cystic kidney, with a curve in the ureter, inasmuch as this kidney is secreting slowly. The patient naturally refuses, at the present time, consent to an operation for the removal of this kidney; but if she does consent because of some future trouble, it will be a simple thing to take it out. The patient is twenty-eight years of age, married, and has had one child. So far as I could determine, this kidney has never given any evidence of disturbance or annoyance. The right kidney is functionating well, but the other displaced one doubtless has never secreted actively.

PERINEAL INJURIES AND METHODS OF REPAIR.

BY

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In the great city of New York a quarter of a century ago I received at the hands of the staff of the Woman's Hospital of this state the instruction I desired in plastic surgery. I shall never cease to express my appreciation of the kindness and attention shown me by Emmet, Thomas, Lee, Hunter, and Bozeman, and their assistants. They were all greatly interested in plastic surgery,—perineal, cervical and the repair of fistulæ. They were doing abdominal surgery as well, but they all did fine plastic work of which I desire at this time especially to speak. They all appeared to look to Emmet for the advanced or modified procedures for the repair of cervical injuries and all the accidents incident to parturition.

The gynecologists throughout the world were practising the old methods of perineal repair of Baker Brown, Simon and many others. Emmet was revising their procedures, studying and repairing the injuries of the pelvic floor or diaphragm, going deeper than the simple injuries of the external soft parts in both the study of the lesion and its repair. Large numbers of active practitioners and surgeons at home and abroad were visiting New York to witness the work of this great past master of plastic surgery. I have had an opportunity of seeing a great number of operations at home and abroad, but none compared with those of Emmet in completeness of method and results. I had tried about all of the old procedures,—the Baker Brown external operation I had done many times,—and I might just as well have told my patient to put on a pair of tightly fitting drawers. The Simon, Hildebrand, Freund and Fritz operations were no better.

The trefoil of Emmet or the Hegar method were improvements over all the external procedures. At present the interest in plastic surgery is not quite so general as it was while the

Woman's Hospital of New York, grand old school of plastic surgery, lived. Our interest at present in the surgery of the right groin is too great for operators to spare time for this important study of plastic work. Recently I have recognized a welcome reaction. Only lately have I received communications of this nature asking my opinion of the value of deeply placed sutures before labor to prevent injury to the pelvic floor, levator ani and fascia, and another regarding the value of deeply placed postpartum sutures to restore the overstretched or retracted muscles and retrovaginal fascia. Again I find renewed interest throughout the country in the Emmet methods. In discussions of this subject I find that a large number of men have a clearer understanding of Emmet's literature; that they prefer and practise his inside operation for the restoration of the pelvic floor without modification, although some of the earlier pupils were inclined to modify and to tack "I," "me," and "my" to their procedures. The one-, two-, and three-stitch methods are fortunately all dead. The flap-splitting operation, an external procedure, is also largely abandoned.

REPAIR OF PERINEAL INJURIES.

I discuss the subject again here to-day to urge the importance of an early and more general practice of good surgery. All injuries or mutilations incident to parturition should be repaired early, while those in the perineum should be done primarily by the introduction of deep inside sutures. At the termination of the child-bearing period, early or late, relaxation of the pelvic floor should be corrected. Both deep external and internal injuries should be restored early to conditions that existed before childbirth. We could prevent physical and mental disturbances, displacements and procidentia, cysts and rectovaginocele by early repair; we should not wait for all the sequelæ and symptoms of injuries so easily recognized and repaired. Early posterior displacements following deep injuries of the levator ani and pelvic fascia prevent conception and favor abortions, while the constant pressure on the sensitive sacral plexus of nerves with the distressing backache and the sensation of something coming down and protruding, starts a large number of women to rest cures and to the neurologist.

Fortunately, the clinician or practitioner at present recognizes the importance of such lesions and examines his patient or has

her examined by someone interested in plastic surgery. Some of the most pleasing results I have ever had in gynecologic surgery have been in young women twenty-two to twenty-six years of age, with one or two children, suffering some acute nervous disturbance following a deep injury and displacement. Some of them were about to be placed in asylums. Careful repair of the injuries in the birth passage restored them fully to their homes, their families, and to active and useful lives. I rejoice that a good number of our abdominal specialists are paying more attention to the soft parts and to the deep pelvis and its contents.

The general surgeon has recently turned his attention from the appendix to the prostate. I am glad he is traveling down, not that his natural tendency has not been in that direction; but the schooling that he will get in the enucleation of that organ is just what he needs for deep pelvic surgery and its natural extirpations. Well done inside plastic surgery anticipates and relieves a good number of distressing symptoms,—decensus, backache, weight and pressure, vaginal respiration with its accompanied admission of dust and dirt admixtures, or normal menses and the decomposition that follows and the heat, burning and itching that results. I have known men to resect all the genital nerves they could find with their knowledge of anatomy, when in all probability good early plastic surgery would have prevented the symptoms for which they were operating and failing to relieve.

Early conceptions are very pleasing after plastic surgery. I make the discussion and draw my conclusions not so much from what I have accomplished, but from the good results and records of many of my friends. Patients and doctors fear recurrence of injuries, but when the results are fully stated I find about all are willing to have the repairs made many times and feel abundantly rewarded. I often tell them that a fine child will probably follow the repair and that a few sutures will not hurt them; promising to restore them to anatomical conditions that existed before childbirth influences them to submit to my counsel.

We have for a long time neglected plastic surgery; we are not giving the subject sufficient study; many of our methods and materials are defective. The appliances of the operating room of the Woman's Hospital of the State of New York were thrice better than those of the modern operating room. At home in my private hospital I have practised as closely as possible just what I was taught by Emmet and his pupils; using the low

operating table; large low windows and the same instruments and materials. I found in traveling about the country and operating in the new costly operating rooms and on the rapid transit tables, that something was wrong and it worried me. I soon recognized that the table and windows were too high; that at home I looked down upon my work and away from home I had to look up to it in a bad light. Now, in view of my experience on this point, let me urge you to use a table and a light that will afford perfect command of the field of operation.

More prolonged preparations should be made for all plastic surgery; especially should suture of a torn cervix always precede perineal repairs. Free puncturing, twice or thrice, should be practised to relieve all cervical cysts and congestive hypertrophies, and to this may be added free douching and dressing the uterus forward for a few days, together with free purgation.

One operation or one object lesson by Emmet was not sufficient for the visitor. Large numbers of doctors left New York with a very cloudy mental picture of the procedure, and about all the attempts they made were unquestionable modifications of his work and what they saw. Some criticised the descriptions of his operations, asserting that they were not clear; that they could not understand them. If they got the stitches inside they rolled out. The denudation and suturing of the lateral sulci were not understood; they were all accustomed to working on the surface, that is, to doing skin surgery; like most surgery at that time it was difficult to tempt them to do deep work.

Had Emmet taught his refined plastic surgery a quarter of a century later, when surgeons had given up dermatology and invaded all the principal cavities of the body, I think he would have found it much easier to teach his methods; at all events his teachings would have taken firmer hold in less time. Being perfectly familiar with the criticism and comments I tried in various ways to make the inside way clear to my assistants and pupils. Holding a knee and assisting was the best thing I could do for my pupils. I thus was enabled to watch carefully their work and to lend advice when necessary. The modern crutch or knee holders were inadequate, so my plan is to have an assistant support and hold each knee firmly.

Emmet's inside operations are always pleasing, resulting in a strong resistant perineum, absence of rectocele, posterior vaginal wall hugging the anterior well up and a total absence of previous symptoms, such as fullness, weight, and pressure and a sensa-

tion of something protruding. The numerous failures in attempts at closure of vesicovaginal fistula and sphincter rents freely demonstrated the loss of interest and the importance of apprenticeship or preparation to deal successfully with such injuries. In nearly all of the sphincter lesions and vesicovaginal fistulæ I deal with, one or more attempts have been made at closure. In some cases I find a good strong perineal band beneath a good-sized fistula and, of course, a great disappointment at the result. Such failures strongly impress me with the importance of prolonged apprenticeship in this special line of surgical work in all educational centers, and, besides, the specialty should be encouraged in all well regulated and well managed hospitals.

Just at this point I want to pay my respects to the general surgeon. The general surgeon knows as much about gynecology as a Chinaman does about teaching Sunday school, and he wholly forgets that his mother, his wife, his sister, and his daughter are going to be neglected, and are going to live the lives of invalids, incapacitated by easily correctible troubles, because he is an obstructionist, opposing this and other important specialties in the larger church and general hospitals. Again, he forgets the importance of his work while, metaphorically speaking, he does not stick to his last. If I were a young man I would go back to general surgery. I realize that general surgeons are greatly needed all over the country. In every town and village in which I enter I am asked to do some important general surgical operation, because it has been neglected; the patient has been passed by, turned down, or a shirking effort made. In one case I was asked to remove the prostate after two efforts had been made,—one above and one below. I found the enucleation as easy as rolling off a log, but the lower route of this operation which the general surgeon usually takes is fearful.

Let us encourage the specialist in all educational centers. The best is bad enough in every specialty. When we have vision corrected we seek the best ophthalmologist; famous artists rarely have more than one pupil. The operator should do plastic surgery early in the day when he is perfectly fresh and has ample time to do it well. He commonly does abdominal work and ends his clinic hurriedly with plastic surgery. He should have his plastic days and his pelvic and abdominal days, and do his work more carefully and better. After dabbling with dirty pelvic suppurative work, and extirpations for malignancy, he should

not attempt surgery in healthy lymph spaces. Plastic surgery is too important to be done in a perfunctory manner; it encourages the spectator in shirking object lessons. I met two visitors on the street one day and asked them to come in the following morning to witness some plastic surgery. One replied: "Oh, h—l; I don't want to see that. Have you no celiotomies?" I relate this truthful anecdote to show how little interest the visiting practitioner manifests in this important work. How greatly must his community be neglected!

ECTOPIC PREGNANCY.

BY

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ANY place in the body where ovum and sperm come together, there fecundation and implantation may take place. By ectopic gestation we understand all those cases of pregnancy which occur in any other organ than the uterus, its proper place. Some prefer the name of extrauterine; but this would not, strictly speaking, include the cases of pregnancy that occur in that part of the tube which passes through the uterus wall—namely, the tubouterine form. Statistics vary greatly as to the frequency of ectopic gestation; thus Low found 1 to 400,000 pregnancies; Bandl 3 to 600,000 and Winkel 16 to 22,000. It is natural that, as the science of obstetrics and gynecology has advanced, so has also the diagnosis of these cases and, if we are ever on the alert, it will be found that these cases are not so infrequent. As early as 1597 Israel Spach published a drawing of Lithopardion *in situ* Benedict Vassal, an Italian surgeon had a case in his practice, which was reported by Manricean, the obstetrician, in 1669.

Until Lawson Tait published his views in 1877, every author accepted, without question, the classification of Dezeimeris, which included ten (10) distinct forms; to-day we recognize three primary forms, tubal, ovarian, and abdominal. It is with the tubal, by far the most frequent form, of which my paper treats.

The cause of tubal pregnancy is to be looked for either in the tube itself, the ovum, or possibly in both. Clinical observation has taught us that women who have given birth to several children and then passed through a period of several years without becoming pregnant, have become pregnant in the abnormal way. Again, it has been noticed that women who have been married for several years and have been sterile these years, have been subject to ectopic gestation at their first pregnancy. It has also been demonstrated that tubal pregnancy occurs more fre-

quently on the left side than on the right, but why this is so is not known.

It appears as though it might be possible for the young ovum to become diseased in its earliert days of development, so that it would proliferate too rapidly and thus be too large to pass through the fine lumen of the tube. Sippel has reported a very interesting case, in which the tubal pregnancy had taken place on one side and the corpus luteum verum was found in the ovary of the opposite side. As it took time for this ovum to travel across the abdominal cavity from the ovary which gave it birth, to the tube of the other side, it naturally grew, and when it found its way into the tube it was too large to pass all the way through to the uterus and was lodged in the tube. That this journey through the abdominal cavity can be made has been clearly demonstrated by Leopold, who experimented on rabbits. He found that after trying the *right* tube and removing the left ovary, pregnancy still took place. Leopold's experiments, I dare say, suggested much of our conservative surgery, which we do to-day on the adnexa of the female.

Another hypothesis advanced is, that the ovum reaches the uterus, but finds there is no nidus and is forced by uterine contractions into the opposite ostium tubæ and there develops. Olshausen has called attention to the frequency in which twin pregnancies occur in tubal gestation and thinks that one ovum may impede the progress of the other and thus both be delayed in their journey, and this delay having given time for growth to the ovi, both find lodgment in the tube and there develop. These are the causes attributed to the ovum. Now we will consider the causes in the tube, which might cause tubal pregnancy.

In a large majority of cases of ectopic gestation, you will find the peritonitic adhesions and pseudo membranes. Olshausen, from his clinical experience, leans to this as one of the chief factors in tubal pregnancies. It is self-evident that tumors pressing on the tube constrict the lumen in such a way as not to hinder the advancement of the spermatozoa, but not allowing so large a body as an impregnated ovum to pass through would surely be a factor in producing tubal pregnancy.

These tumors may be in the shape of enlarged ovary, or a myoma of the tube wall, a polypus of its mucous membrane. Inflammation of the mucous membrane of the tube, due either to gonorrheal or puerperal endosalpingitis, by destroying the function of the ciliæ of the epithelium is thought by some the

most frequent cause. Some look to the retardation or lack of the peristaltic action of the tube as one of the causes. N. A. Freund of Strassburg thinks the persistence of the windings of the fetal tube in the mature woman to be an etiological factor. These patients also have pubescent uterus and we all know that this class of women are the ones who are married many years before becoming pregnant.

Micholitsch, Assistant to Werthheim in Vienna, published an article recently in the *Zeitschrift fuer Geburtshuelfe und Gynacologie*, in which he demonstrated by microscopical sections that the pregnancy took place not in the tube proper, but in diverticuli. He holds that this is always the cause, namely, that the impregnated ovum becomes lodged in one of these diverticuli. Not only the size of the ovum or the obstructions in the tube can in and of themselves produce a tubal pregnancy, but the mucous membrane of the tube must be in a fit condition to develop a decidua and nourish the ovum.

In the tubal pregnancies the tube undergoes the same changes as does the uterus in normal pregnancy. The muscular layers undergo hyperplasia and hypertrophy, the bloodvessels become dilated and engorged with blood, the mucous membrane forms a decidua serotina and reflexa. Some disputed the existence of a decidua reflexa when Winkel demonstrated his first case in 1871, but his statements were verified and confirmed by Frommel.

The mucous membrane of the entire tube is not converted into a decidua, but simply that part which gives lodgment to the ovum. The uterus likewise undergoes hypertrophy and forms a decidua.

The symptoms of ectopic gestation are exactly those of a normal pregnancy. There is a cessation of menstruation, yet not too much weight can be laid on this symptom, either in uterine or tubal pregnancy. Discoloration of the genitalia, pigmentation of the linæ albæ, and areola about the nipples, appearance of colostrum in the breast, dysuma and morning sickness. From the symptoms you would not know whether you have a normal or an abnormal pregnancy to deal with. Your diagnosis must therefore be made by digital and bimanual examination. The uterus will be found to be enlarged, cervix softened. The enlargement of the uterus will be uniform, but you will not find the longitudinal groove as is found in uterine pregnancies in the early months, as laid special stress on by Schanta. To one or the other side of the uterus, most frequently

the left, will be felt a soft doughy mass, corresponding to the tube, which is either rounded or spindle form and often sharply demarcated from the part of the tube which is not occupied by the fetus. One is always to be very gentle and cautious in examining a case of probable tubal pregnancy, on account of the great chance of rupturing one of these tubes by our manipulations.

I have recollection of two cases being ruptured by examination. One occurred in the Krobach Klinik in Vienna and the other at Christ's Hospital. Both cases were fortunately so situated that prompt surgical relief could be had, and were saved.

The usual outcome of these cases is either rupture of the sac, with expulsion of the fetus into the uterus, broad ligament or abdomen, in which case the fetus with its membranes is expelled into the abdominal cavity without rupture of the tube. The primary rupture of the sac usually occurs between two and fourteen weeks, and the tear is almost always situated at the upper and posterior part of the tube, the place of least resistance. At the time of the rupture the woman will be seized with sharp pains in the region of the uterus, the pulse will become frequent and small, she will become faint and pale and cold, clammy sweat will break out over the body. There will be a yawning and sighing respiration and all the symptoms of an internal hemorrhage at the time of the rupture of the sac.

The difference of the symptoms in tubal abortions and tubal rupture are in a degree only. If the placenta is situated at the upper part of the tube and the rupture takes place there, as it usually does, the hemorrhage and collapse will be necessarily greater. If the tear is at the lower part of the tube and the blood pours out into the broad ligament, it will form a tampon for itself and thus tend to check the hemorrhage.

As soon as the ovum dies there is a bloody discharge from the uterus, with expulsion of pieces of the decidua from the uterus. The woman quite frequently rallies from this attack. If the ovum is very young, it can be entirely absorbed; if of several months' gestation, it may be formed into a greasy mass, consisting of cholesterin lime salts, fat and bones, become encapsulated and cause no disturbance. Yet it is always a source of danger and frequently suppurates with rupture into the peritoneal cavity, bladder, vagina, rectum, or through the belly wall.

Just as we distinguish the normal pregnancy between a first half and a second half of pregnancy, so must we do in tubal

pregnancies. It is seldom that we will have an opportunity to diagnose a tubal pregnancy in its earliest weeks or before symptoms of a rupture have occurred, because the women do not present themselves for examination. The diagnosis is made by means of the bimanual examination and a careful history.

An important sign is the expulsion of the decidua from the uterus. This is usually expelled with great pain and in large pieces. The expulsion of the decidua never occurs in an uninterrupted tubal pregnancy, but always when the pregnancy has been interrupted by death of the fetus, rupture of the tube, tubal abortion, or subplacental hemorrhage. This decidual membrane microscopically can be easily mistaken for an abortion or for a dysmenorrheic membrane. The microscope is necessary to differentiate them.

At the time of the rupture or abortion is when the physician is usually summoned. Besides the symptoms of collapse, due to the hemorrhage which has taken place, there will be found a soft mass filling up Douglas' cul-de-sac, with some ante position of the uterus, or this mass may be felt in the broad ligament. The hemorrhage can be so great as to fill a greater part of the lower abdomen.

In the second half of the tubal pregnancy the diagnosis is not so very difficult. We have the positive signs of pregnancy. fetal parts, heart sounds, fetal movements. The fetal movements will be much more painful to the woman, owing to the thin sac and irritation of the peritoneum. Map out the uterus and it will be found to be anterior and to one or the other side of the mass. The uterus will not be as large as a uterus ought to be, judging from the length of pregnancy learned for us in history of the case. In case of doubt the sound might be used. Every ectopic gestation should be looked upon as though it is a malignant growth and removed at the earliest time possible.

Lawson Tait recommended removing both appendages as it is often found that the patient is a subject of a second ectopic gestation of the other tube. Recently a case came under our care in which an ectopic gestation was removed some seven years ago and the apparently healthy tube left. The woman during this seven years has given birth to two healthy children, still living, and recently had her remaining appendage removed for the same cause. It seems to me that one is justified in allowing the apparently healthy tube to remain, as this case has demonstrated the possibility of normal pregnancy. Even at the time

of the rupture, if the patient is not suffering too intensely from collapse, I would recommend removing the offending appendage. Edward Ihm recently published statistics as to the mortality when the expective treatment is used:

Winkel has a mortality of nihil.

Winter has a mortality of nihil.

Thorn has a mortality of 1 per cent.

Schauta has published quite a list of cases, which were operated upon by laparotomy and had 1½ per cent. of deaths. If we consider Thorn as taking 1 per cent. as the death rate, with the expective plane, and Schauta 1½ per cent. after operation, and if you consider the time it takes to convalesce and some never are well after the expective treatment, I think that all cases ought to be operated upon, as the operation is usually followed by a thorough convalescence in three to six weeks.

The treatment at the time of the hemorrhage is to get the patient as quiet as possible, relieve the pain by morphine, elevate the foot of the bed, bandage the extremities, apply heat to the body, intravenous salt solution and very cautiously use stimulants.

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